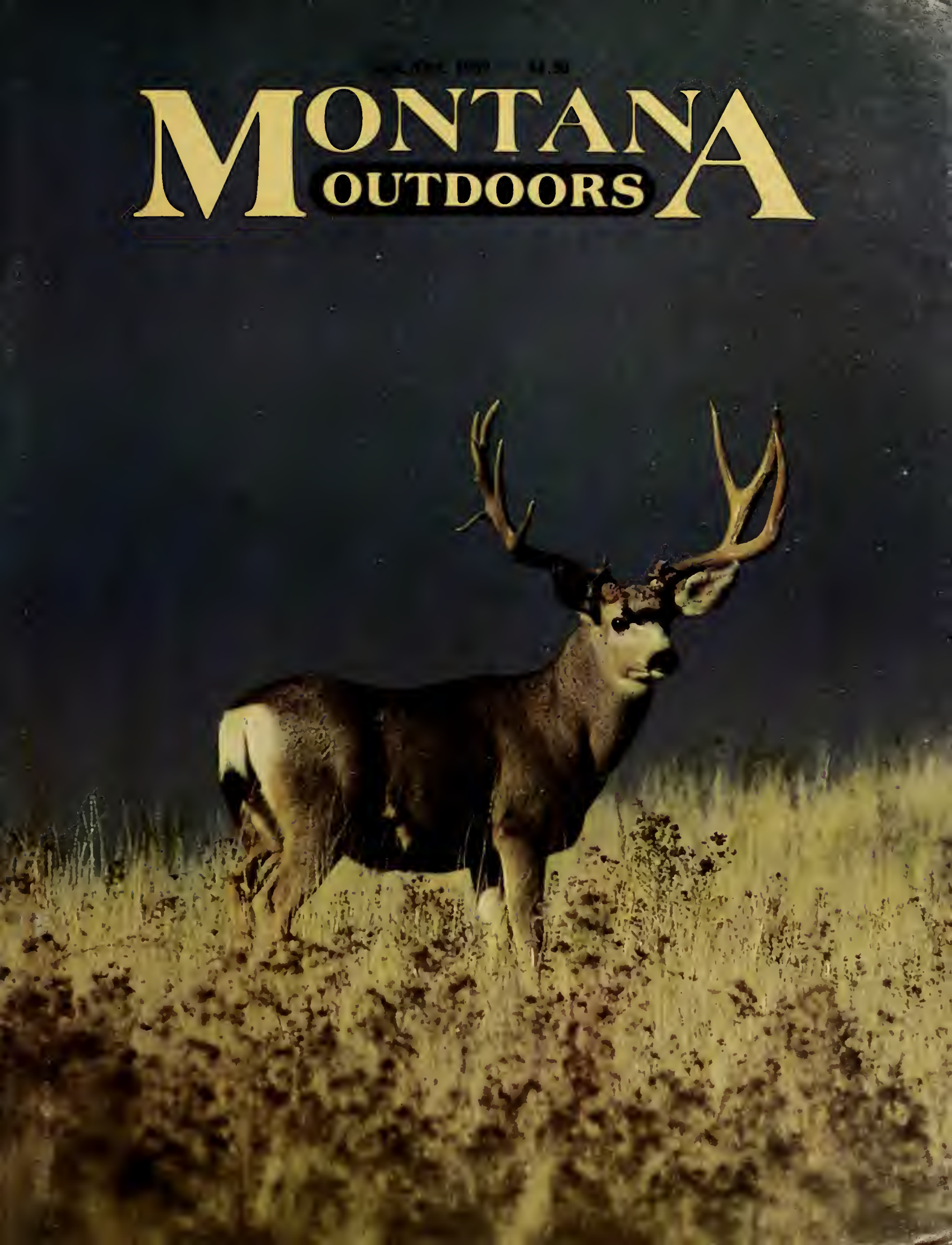
MONTANA OUTDOORS



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One of the sights that sets aflame the hearts of hunter and photographer alike is light glinting off the antlers of a heavily racked animal. A superb example is Conrad Rowe's front cover shot of a mule deer. Another fine example is Debi Ottinger's close-up view of an elk, our inside front cover. Shirley Johnson's back-cover illustration captures a different sort of light, the golden fire in a wolf's eyes.

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Missouri Breaks

THE HERE AND NOW HAPPY

On the high northern Montana plains, there is a place on the Missouri River Plateau that was once covered with rich grasslands, forests, and extraordinary numbers of game. In the native mythology, Indian nations gathered there and together hunted game on common ground and smoked ceremonial pipes in solidarity. Eden. The fall from grace came when a fierce mountain tribe took possession of the hunting grounds and could not be displaced. Men who tried were killed in battle and medicine men fasted and mutilated their bodies to appeal to the Great Spirit.

The wrath of the Great Spirit was unforgiving. The sky turned dark and the earth heaved fire and smoke. Lightning flashed and thunder boomed as the mountains were annihilated and the earth rolled in waves. Buttes and spires were scoured from the desolate terrain. The fierce tribe, like the mountains, was annihilated and the Missouri Breaks became a monument to the Great Spirit's wrath.

"Still aren't many people here," Harvey Nyberg said. We had left Malta about 7 a.m. and were making our way south at a 55-mph-clip on a maze of dirt roads, through largely open—that is, "fenceless"—range on Sun Prairie Flats and into the deep coulees of the verdant Larb Hills. During the day, although we would often top superhighway speeds and travel more than 150 miles, we would pass no gas station, convenient store, fast-food restaurant, or telephone booth. "That's the character of this country," Nyberg offered. "It's just empty. It won't support many people." Of the few ranch homes we passed, several had prop-planes tethered to the ground. Out here, the planes seemed a necessary substitute for

HUNTING GROUND by Tom Palmer

a second family car.

On the way, the open landscape was broken by abandoned homesteads—some of log and others of sod—that are testimony to the people the uninviting land had spurned. Many of the ranchers here call it "next year country" in the same "wait'll-next- year" manner New Yorkers used to talk about Casey Stengel's Mets. The colloquial joke goes: "In this country, there are two good years, 1919 and next year."

Sun Prairie Flats is only about 35 miles south of Malta, but during or after a rain shower the clay "gumbo" soil will challenge even the best equipped 4x4 to make the trek through the soup in two hours. "Usually, when it starts raining and I'm in the Breaks, my first order of business is leaving," Nyberg said.

Nyberg, who has reason to be in the Breaks often enough to have learned how to cook a can of beef stew on the truck engine's manifold, always comes in equipped with a shovel and *two* spare tires. Everywhere in the Missouri Breaks is miles from nowhere and no place to get stuck.

Yet, Nyberg's treks into the Breaks come with the territory; he is the Montana Department of Fish, Wildlife and Parks (DFWP) wildlife biologist responsible for managing a portion of what has become one of the most majestic elk herds in the world.

"In terms of providing habitat for elk, the Breaks is nearly perfect," Nyberg said. "In fact, you couldn't ask for better

The Missouri Breaks elk herd has become one of the most majestic elk herds in the world (photo: Julie Burke).

habitat.''

In a land too harsh and too remote for most people to live, the Missouri Breaks is a wildlife haven. Elk. White-tailed deer. Mule deer. Antelope. Bighorn sheep. Mallards. Geese. Canvasbacks. Godwits. Avocets. Swainson's hawks. Golden eagles. Sage grouse. Sharp-tailed grouse. Prairie dogs. Rattlesnakes. Beaver. Otter. The catalog of species includes more than 40 mammals, 200 birds, 16 amphibians, and 17 fish—it is a cradle of wildlife diversity that in modern times is unusual for such a desolate landscape.

Gene Barnard, a lifelong resident of the Breaks' Telegraph Creek drainage and the resident historian of Phillips County, said there are portions of the Breaks where he needs two sections of land—two square miles—to pasture a single cow for six months. To some that might reflect a poor range, but the wildlife, especially the elk, have managed to thrive.

During our backcountry tour of the Breaks, Nyberg occasionally pointed out modern-day hunting camps cut from the bottomland. The Breaks, historic Northern Plains Indian hunting grounds, were once again holding court for hunters. Although it has become a replenished land, the increasing number of hunters in this unpopulated and largely barren country has begun to ironically and irrevocably change the nature of the hunt.

''Because of the nature of the Breaks' irregular topography, the elk here are very easily moved. It doesn't take a lot of people to push these animals around and out of their habitat and that can be troublesome,'' Nyberg said. ''During the 1981 archery hunt, the elk were said to be spread from here to kingdom come; they were even swimming across the Missouri.''

IN THESE RIVER BREAKS, the north side of the Missouri River is the preferred habitat for the renowned elk herd that roams in and around the Charles M. Russell National Wildlife Refuge (CMR). The refuge straddles both sides of the river and the Fort Peck Reservoir. It is immense. The state of Rhode Island and New York City could be comfortably repackaged to fit within the CMR's borders. It is the second largest wildlife refuge in the contiguous 48 states, extending 125 miles along the Missouri River and encompassing 1.1 million acres. Surrounding it are hundreds of thousands of acres of additional public land administered by the federal Bureau of Land Management.

When Lewis and Clark passed through the Breaks in May of 1805, the land rioted with elk, deer, antelope, and grizzly bear. Yet, by 1900, the native plains elk were extinct and other endemic wildlife were all but wiped out.

The movement to bring elk back into the Breaks emerged briefly in 1935 and then convincingly in 1951-52 when 161 elk from Yellowstone National Park were shuttled to the Breaks under unusual circumstances. The Montana Fish and Game Department (now the DFWP) caught the elk, and Breaks' farmers and ranchers used their own trucks to transport the animals back to the Missouri Breaks. The Yellowstone elk were released in four strategic locations.

Today, the Missouri Breaks elk herd is estimated at 1,500 head, and most can be found from Fourth Point west to beyond the CMR refuge boundary. The elk herd is majestic by design; since 1979, the U.S. Fish and Wildlife Service has wanted to maintain a large number of mature bulls in the CMR herd for people to see and to enjoy. ''This is a wildlife refuge and the intention is to manage the CMR differently than other public lands,'' said refuge biologist Bill Haglan. ''We wanted to see a variety of age classes represented in the herd. We've worked with the state of Montana to achieve that and I think we've succeeded.''

Nyberg said the style of management is ''about as close as Montana has come to managing for trophy elk.'' In 1985, about 70% of the Breaks bull elk harvested during the rifle *and* archery seasons had handsome five- to seven-point racks. ''It's not every year that we have a Boone and Crockett bull taken,'' Nyberg said, ''but every year we have numerous Pope and Young bulls taken.'' The Pope and Young Club officially chronicles the size of big game archery trophies in a manner similar to the Boone and Crockett rifle trophies. In Montana, four of every 25 elk trophies documented by Pope and Young have been taken from the Missouri Breaks. It is a statistic the terrain could never betray.

That Rocky Mountain elk are commonly associated with the rugged Rocky Mountains is an apparent redundancy. Nevertheless, by modern standards, the odd terrain of the Missouri Breaks, although rugged, does not remotely resemble the Rockies' familiar high mountain, heavily timbered elk country. The high plains ''tableland'' of the Breaks typically has difficulty hiding elk. To simulate the topography, imagine an irregularly corrugated pool table with rumpled, ill-fitting felt. Bend down to meet the table at eye level and turn loose a handful of ants to simulate the elk. The ants on the pool table are as easy to see and to follow in and out of and behind the rumpled felt as are the elk in and out of the pines and up and down the coulees. ''That's why we've never had a general rifle season in the Breaks,'' Nyberg said. ''The elk are just too vulnerable.''

It is also one of several reasons why the Missouri Breaks has evolved into a popular hunting area. Count the gargantuan swath of public land as another incentive for central and eastern Montana sportsmen's adoption of the Breaks as their own. ''This has always been a regional type of hunt,'' Nyberg explained. ''If you ask around you'll find that there is no question that these elk belong to the people of northeastern Montana.'' Still, the visibility of the mightily racked bull elk has proved to be an attraction that draws hunters from all corners of Montana and the nation. For many sportsmen, just to have seen elk is to have hunted elk—and in the Breaks, spotting elk is a lead pipe cinch.

During the rifle season, Breaks elk have always been hunted with a limited number of permits issued to sportsmen via a special drawing. The rifle hunter success rate is extraordinary, historically running about 65% and sometimes as high as 85%. By comparison, statewide elk hunter success averages about 15% during the general hunting season. The Breaks is an ideal year-round habitat that provides elk with sufficient

ALLEN WIEDERRICH

In Montana, four of every 25 Pope and Young (archery) elk trophies are taken from the Missouri Breaks.

thermal cover and excellent grassland forage. Winter kill of elk is almost unknown here, and the annual calf crop usually ranks among the best in Montana. In a best-of-both-worlds scenario, when the elk abandon the pines for the forage in morning and evening twilight, it provides as satisfying an experience for wildlife watchers as one can find this side of Yellowstone National Park.

Breaks rancher John Matovich, Jr., a lanky, inquisitive man, said a herd of bulls has summered in the pines on his ranch for the past 20 years. "It's kind of nice to see them around here," Matovich said. "It's a form of entertainment out here in the summer. If visitors come by, I take them out to see the wild elk. I get more fun out of watching other people see those old bulls!"

Matovich's ranch hand, Dave McEwen, a young thick-set cowboy with a powder keg chest, appeared more interested than his boss in hunting the elk, but he too acknowledged that the elk generally add a pleasant dimension to life in the Breaks. McEwen said he has watched the bulls in the pines with great expectations, but he has yet to have his number come up in the big game drawing. In summer, while riding the range alone on a saddle horse, McEwen has run in tandem with elk at a full lope only to have his horse pull up sharply at a draw, leaving him to watch the elk take the slope with the spirit and agility of a cat. "That is some animal," McEwen said and laughed.

In 1979, as interest in elk viewing and in elk hunting continued its upward trend, the managers of the CMR expressed a desire to have a more diverse age structure in the elk herd, a structure that would include more mature bulls. The intent was to increase "non-consumptive" (visual) opportunities for tourists, photographers, hikers, and sightseers. The DFWP agreed to introduce more restrictions on elk hunters during the rifle season by decreasing the number of permits issued to comply with the new CMR goals. The conservative rifle season was designed to maintain at least 15 bulls per 100 elk. In 1982, the DFWP increased that goal to maintain 20 bulls per 100 elk in the winter herd.

AT THE SAME TIME, word of a bountiful, accessible herd in the Missouri Breaks' vast public land holdings was beginning to attract national attention via hunting and fishing magazines, and the sport of archery was quickly becoming more popular. "These seemingly unrelated events met head-on in the Breaks," Nyberg said. "You had an increasing interest in elk hunting and then we began managing for a high-quality herd. In the Breaks, archery hunting increased two times as fast as the general statewide growth of the sport since 1979."

From 1979 (the year the DFWP began to collect specific information on the amount and distribution of Breaks archery hunting pressure) to 1981, archery hunting increased 63%, with the majority of the pressure occurring in the sparsely timbered hunting districts in DFWP Region 6 north of the river.

Biologists suspected that the hunting pressure was creating problems for the elk and that the long-term consequences of such disturbances could be damaging to the well-being of the herd.

In addition, many archers also lodged complaints about the number of hunters in the Breaks, but that opinion was not universally held among other rank-and-file bowhunters who lodged their own complaints about the suggestion of potential regulations that could limit hunting opportunities.

In the Breaks, management of wildlife has become a question of balance among the biological needs of the herd, the increasing desire of sportsmen to hunt on public lands, and the quality of the outdoor experience on those lands. Trying to find the balance has been difficult for both wildlife managers and for sportsmen.

WILLIAM HAGLAN

From the reintroduction of 161 Yellowstone Park elk in the early 1950s, the Missouri Breaks herd has grown to about 1,500 head.

IN AN ATTEMPT TO ACHIEVE A BALANCE, since 1982, the DFWP has asked archers to apply for a limited number of permits to hunt in two of five Missouri Breaks hunting districts (HD 631 and 632), both on the north side of the river.

In the remaining three hunting districts (HD 621, 622, and 623), where archers are being asked to apply for an unlimited number of permits as their first choice, the permit system is designed to stabilize, rather than reduce, the current hunting pressure.

Time will tell whether the permit system has been effective. In the meantime, members of the Montana Bowhunters Association (MBA) are doing their best to effect a balance of their own.

Buddy Lundstrom, of Malta, is the president of the MBA, a sportsmen organization that is almost umbilically attached to the joys of hunting the Missouri Breaks. According to Lundstrom, over the next two years the MBA will attempt to police its own ranks in the Breaks by discouraging questionable hunting tactics, and by helping landowners restrict vehicle access to roads near vital elk habitat. "We're going to try to tighten things up," Lundstrom said. "The Breaks is a dandy area and it's nice country, but the archers have to understand that when the elk are chased out onto the prairie, they're not easy to get because there isn't enough cover. I've hunted there long enough to learn some tricks, but the Breaks fools a lot of people. In the Breaks, seeing the elk is only the beginning."

Similarly, the question of balance between the long-term biological benefits of the Missouri Breaks elk and the quality of the experience for sportsmen who hunt them is only beginning to be answered.

NYBERG AND I STOPPED FOR LUNCH AT IRON STAKE, a U.S. Geological Survey triangulation station on a pinnacle above the Missouri River. Barnard, the Telegraph Creek rancher, calls the expansive view from Iron Stake the most beautiful in the world. But the beauty is bittersweet.

"There are a lot of drawbacks to life in these Breaks," is what I recalled Barnard saying as he served the steaming cups of coffee during our brief visit to his homestead ranch. "It's big country and a long ways from any place, but I still like it. This area has remained about the same as when Lewis and Clark came through. It's unchanged, really. It's just so remote, and a lot of that is due to the harshness of the country."

Nyberg wandered to the edge of the Breaks and stood quietly on the point of a rock spire with his hands plunged deep into his pockets. He was dwarfed by the landscape and, washed in the intense, bright light of the midday sun, he appeared for a moment to be re-establishing his respect and admiration for the scoured, corrugated, and empty wildlife empire.

From Iron Stake, we walked to the head of Chippy Creek and watched four ewes, a lamb, and a young bighorn ram traverse the coulees.

We were to make a loop through the Breaks and return to Malta via Shed Coulee and along Killed Woman Creek and through Reynolds Hill. Killed Woman Creek was the site of an Assiniboine Indian camp attacked by a war party of Teton and Oglala Sioux and, as the name suggests, a woman was killed there. The terrible flood that ravaged the Hi-Line for several days last September had wreaked havoc with the roads and had widened the creek channel the way an ax can widen a notch on a log. So, rather than chance a gumbo quagmire, Nyberg pulled out and headed back up steep Shed Coulee and chose another route back to town.

The out-of-the-way route led us to Medicine Rock near Indian Lake, far out on the prairie littered with the terminal moraine glacial debris of the Pleistocene epoch. The rock is the lone boulder in a field of small stones and chipped from it is the equivalent of aboriginal graffiti. Archetypal fertility symbols and hunting images swarm over the rock in grand celebration. Coming from the north, the rock may have promised the best hunting ground just this side of the happy one beyond.

A line of elk tracks, painstakingly carved from the red boulder, directs the hunter across the empty landscape to the heart of Missouri Breaks. Perhaps it always will.■

The Man Who Moved Mountains

by Tom Butts

Aldo Leopold has been described as the "father of wildlife management," the "Dean of Deans" of that profession, a "prophet" of the wilderness preservation movement in America, and the father of ecological ethics. This year—1987—is the 100th anniversary of his birth. As tribute, some mention of his extraordinary contributions to the art and science of resource conservation seem appropriate.

Born in Burlington, Iowa, in 1887, Leopold grew up midst the bluffs and bottomlands of the Mississippi River where his parents encouraged an interest in hunting, fishing, bird-watching, and natural history. In 1906, he entered the Yale School of Forestry, studying for a career that appealed to his love of the outdoors. The doors of that profession

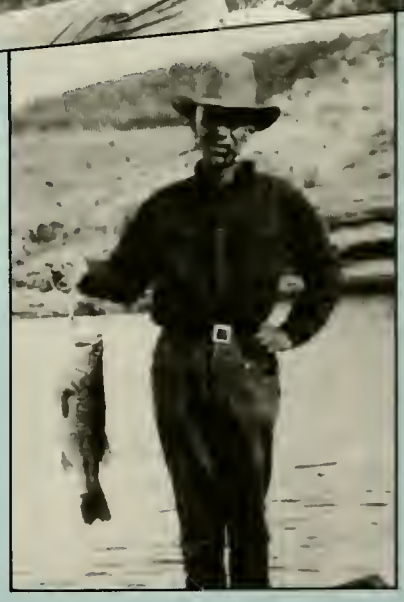
were just beginning to open. The previous year, about 100 million acres of federal forest preserves, set aside beginning in 1891, had been turned over to the newly designated U.S. Forest Service (USFS), a branch of the Department of Agriculture.

Graduating from Yale in 1909, with a master's degree in forestry, he was hired by the USFS. Except for a year when he was employed by the Albuquerque Chamber of Commerce, he worked for that agency until 1924. He was stationed in the American Southwest where he rose in the ranks from boss of a field reconnaissance crew to supervisor of the Carson National Forest by 1912, and to assistant district forester in charge of operations by 1919.

He spent much of his time during the early years with the Forest Service organizing game and fish research in the Southwest. In 1916, he wrote: "I am organizing game protective associations over both states [Arizona and New Mexico], securing the reintroduction of locally extinct species, stocking hundreds of waters with trout, fighting suits for violation of game laws, giving illustrated lectures to the public, hammering on game protection through the newspapers, raising a fight on predatory animals, and have written a book outlining plans, ways, and means. While making good progress, I think the job will last me the rest of my life." When not hunting doves or ducks in his spare time, he was also secretary of the New Mexico Game Protective Association and editor of its newspaper, The Pine Cone, and was involved in national battles for federal legislation concerning refuges and migratory waterfowl.

In his later years with the USFS, he was an administrator responsible for business organization, finance, personnel, roads and trails, and fire control. In her excellent study of Leopold, "Thinking Like a Mountain," Susan Flader commented of these years: "...along with his very real accomplishments in developing more efficient personnel practices, fire control procedures, and methods for inspecting forests went a deep and active commitment to other less traditional concerns of the Forest

Leopold inspects one of the thousands of trees he and his family planted on their farm in Wisconsin. Always prepared, Leopold never missed an opportunity to expand the emerging science of wildlife management.



Leopold's ecological insights stemmed in large part from his lifelong interest in hunting and fishing.

photos courtesy of the Leopold family and Gary Laib

Service, such as watersheds, wildlife, and wilderness. He helped stimulate research on erosion control and prepared a watershed handbook for the district....Not the least important was the groundwork he laid for administrative designation in 1924 of more than a half-million acres in the Gila National Forest as wilderness...."

In the book "Wilderness and the American Mind," Roderick Nash devoted an entire chapter to Leopold's contributions to development of wilderness protection. Nash noted, "Leopold felt that what was at stake in keeping some wild land was the quality of American life—the welfare of the nation beyond its material needs." Nash continued: "Wilderness preserves, then, were not just for fun. They maintained the opportunity for successive generations of Americans to acquire the characteristics of pioneers and to acquaint themselves firsthand with the conditions that shaped their culture. Speaking for himself, Leopold declared: 'I am glad I shall never be young without wild country to be young in. Of what avail are forty freedoms without a blank spot on the map?' "

In a tribute to Leopold shortly after his death in 1948, biologist Paul Errington commented that the Leopold papers published between 1916 and 1919 were mostly short pieces in *The Condor* and *The Journal of Forestry* on ornithology, game, and game refuges. One paper published in the latter journal discussed national forests as the last free hunting grounds in the nation. Papers published by Leopold in the early 1920s dealt with "ornithology, hunting and game management, erosion control, ecological consequences of forest fires, and wilderness values. Included is one [Errington regarded] as his first great paper: 'Wilderness as a form of land use,' published in the *Journal of Land and Public Utility Economics*, 1925."

Leopold accepted a transfer in 1924 to become associate director of the U.S. Forest Products Laboratory in Madison, Wis., where he worked for four years. Flader suggests these must have been frustrating years for Leopold. He had more or less been promised the position of director, which he never was given. The laboratory was concerned with the utilization of trees once they were cut down, but Leopold's interests had always been with the living environment, and many of his suggestions were ignored. During this time, he was also working on a book about game management in the Southwest, a project he eventually abandoned.

In 1928, Leopold left the laboratory and struck out on his own in a new field: game management. With funding provided by the Sporting Arms and Ammunition Manufacturers' Institute, he began a game survey of the north central states. His goal was to show people at the local level that more game could be raised by looking at the environmental factors affecting productivity and altering these, rather than simply creating refuges, or raising and releasing pen-reared stock. He also chaired a large committee in charge of formulating a game policy in America that was adopted by the 17th American Game Conference in 1930. In this policy were strong statements suggesting the United States should strive for some management of its game but would do well to avoid such intensive management—as practiced in Europe—that the wildlife wasn't wild anymore. Leopold wrote, "The recreational value of a head of game is inverse to the artificiality of its origin, and hence in a broad way to the intensiveness of the system of game management that produced it."

Leopold's ideas on the role of the predator had changed by now, compared with his early USFS days when he had written: "It is going to take patience and money to catch the last lion or wolf in New Mexico. But the last one must be caught before the job can be called successful." By now he was against the "ruthless suppression" of predators and advocated "light, local, seasonal, and selective handling of the predator factor."

By 1931, funding by the Institute ran out. The Depression was well under way and Leopold had a wife and five children to support. He used this time to write "Game Management," published in 1933, the original statement of the modern science of game management, and still a classic today. In it he explained what game management meant to him at the time: "The game manager manipulates animals and vegetation to produce a game crop. This, however, is only a superficial indication of his social significance. What he really labors for is to bring about a new attitude toward the land....Game management...promulgates no doctrine, it simply asks for land and a chance to show that farm, forest, and wildlife products can be grown on it, to the mutual advantage of each other, the landowner, and the public."

Errington commented on this period of Leopold's writing, "Among the changes in professional emphasis to be detected in his publications, 1929-35, is one from the survey to the intensive method of research and another from game management for shooting to far broader versions of management involving native prairie flowers and song birds as well as game and game habitats."

Flader points out in her book that during this period Leopold was beginning to incorporate the ideas of ecology into his thoughts, but still conceived of management as control: "Management was the purposeful and continuing alignment, or control of these forces (the axe, plow, cow, fire, and gun). In his emphasis on management, Leopold simply extended to wildlife, through the medium of rudimentary ecological science, a faith in the possibility of intelligent control." She continues: "His plea was for ecological understanding, for the extension of ethics from the realm of human social relations to the whole land community of which man was an interdependent member. But...the emphasis was not so much on the concepts of ecology as on the use of tools—tools economic, legal, and political as well as scientific and technical—to create a more enduring civilization."

In 1933, the University of Wisconsin at Madison created a position for Leopold, the first in game management. He set up a small graduate study program and began to emphasize "deep-digging research" to get beyond simple habitat manipulation. His continual press for establishment of research programs at the state level resulted, in 1935, in

creation of the Cooperative Wildlife Research Unit Program, nine research units across the country at select land-grant colleges.

A subtle and highly significant shift in Leopold's orientation occurred during the mid-1930s. Flader listed three significant events in 1935 that shaped this shift. First, Leopold, Bob Marshall, and others formed The Wilderness Society. Flader wrote: "This new attitude involved a commitment to preserve threatened species, especially predators such as wolves and grizzlies, which Leopold now realized were essential to the healthy functioning of ecosystems. The year 1935 marked a reorientation in his thinking from a historical and recreational to a predominantly ecological and ethical justification for wilderness."

Second, in late spring of 1935 the Leopolds bought a farm on the Wisconsin River that was to become a challenge for Leopold in putting his ideas of conservation to work. It was also to become the setting for many of the sketches in "A Sand County Almanac."

The third event of that year was a fall trip to Germany where Leopold studied German wildlife management and forestry. In this intensively managed situation, Leopold re-evaluated many of his objectives of wildlife and forest management. He began to feel it was important to encourage diversity, as Flader put it, in the "widest possible realm in which natural processes might seek their own equilibrium." Leopold mused: "We Americans yearn for more deer and more pines, and we shall probably get them. But do we realize that to get them, as the Germans have, at the expense of their wild environment and their wild enemies, is to get very little indeed?"

From this time until his death from a heart attack in 1948, Leopold's primary work was developing what he termed "an ecological conscience." By about 1937, his writings had begun to stress the need for man to be less of a manipulator and more of a participant in the processes of nature. He became impatient with the prevailing emphasis of wildlife managers in producing something to shoot and implored, "In the nature of things, we are mediators and moderators, and unless we can help rewrite the objectives of science our job is predestined to failure."

Aldo Leopold — Commemorative Year 1987

Aldo Leopold — 1887-1948

In 1940, he told a meeting of professional wildlife managers: "We find we cannot produce much to shoot until the landowner changes his ways of using the land, and he in turn cannot change his ways until his teachers, bankers, customers, editors, governors, and trespassers change their ideas of what land is for. Thus we started to move a straw and end up with the job of moving a mountain."

Shortly after his death, "A Sand County Almanac" was published. The collection of his writing includes "The Land Ethic" which many consider his strongest statement about man's responsibility for the health of the land: "A land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for its fellow members, and also for the respect of the community as such. A thing is right," he concludes, "when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."

Susan Flader summarized Leopold's accomplishments: "Leopold's intellectual development mirrors the history of ecological and evolutionary thought, while his career spanned the first half-century of the movement for conservation and resource management in America. His enduring achievement was to integrate the two strands—the scientific basis and the conservation imperative—in a compelling ethic of our time." She continued, "It was the land ethic, his concept of land health, or the philosophy of a natural self-regulating system, coupled with his assertion of individual obligation, that represents his (greatest) contribution."

Aldo Leopold—philosopher, prophet, father of many professions, prolific and often poetic writer, professor, wilderness and wildlife advocate, ecologist. The list goes on. It would be easy to let such a man become a legend. Let us, however, heed the words spoken by Leopold's friend Paul Errington shortly after Leopold's death: "Let no one do him the disservice of fostering Leopoldian legends or Leopoldian dogmas. Knowing him as I have, I can say he would not wish them to arise from his having lived....

"In some respects, we might look upon wild beauty, as such, whether in back yard or in remote places, as a most fitting memorial to him and to his kind. Let us recognize our obligations to a philosophy of living that has goodness in it beyond selfish objectives; and moreover, that we honor him according to the way we, ourselves, live and lead."■

Montana's Trophy Bonanza

by Norman C. Roettger, Jr.

Montana continues to be a bonanza for sport hunters of big game. Montana manages its wildlife to provide diverse recreational opportunity, and trophy hunting is only one such opportunity. But for those drawn to trophy hunting, it represents the *ultimate* opportunity.

Since the last Boone and Crockett record book in 1981, two interim books have been published. The book listing the entries for 1983-85 is hot off the press; the earlier volume covered the three previous years, 1980-82. Combining the information in the two books gives us the picture over the last six years, and a review indicates that Montana continues its outstanding performance in the production of superlative trophy game for the sport hunter.

In preparing the facts and figures for this article, exceptionally large heads included in the interim awards book but not yet verified were included; heads that don't qualify for the all-time permanent records book, even if included in the interim awards book, were not. (Some "bragging heads," just below the minimums for the all-time records book, are now included in the interim awards book.)

Bighorn Sheep

Possibly the most spectacular hunting explosion of the century has been the quality of the bighorn rams taken in Montana in the last few years. During the six years covered in this survey, Montana and Alberta engaged in their usual race for quantity of Boone and Crockett bighorns—with Montana edging out Alberta 38 to 37. However, when one considers only quality in the rams at the top of the charts—no contest! Of the 10 rams taken with a Boone and Crockett score of more than 190 points, seven are from Montana and only one is from Alberta.

In the 1980-82 awards book, Montana had Nos. 1, 2, and 4 of the top six, while in the 1983-85 awards book, Montana had three of the top five. Not convinced? Then try this measurement: Of the five rams in the six-year period that scored more than 195 points, *all* are from Montana, with the exception of a pickup bighorn from South Dakota's Badlands National Park.

Why is the score of 190 or 195 so dazzling? If you want to see veteran hunters stop in their tracks and their mouths drop open, watch them glimpse a 195-point ram at a hunters' convention or in a taxidermy shop. Simply put, these are eye-popping, heart-stopping horns.

Where should you apply for a chance at a super trophy? Rumors abound that the big Montana rams come from only one or two counties. Not so—seven counties have produced rams of more than 185 points in these six years; rams meeting Boone and Crockett's minimum score of 180 points were taken in 12 Montana counties, stretching from Yellowstone National Park in the southwest to Lincoln County in the northwestern corner, so no reliable clues exist about where to apply for a chance at a really big Montana ram. You can apply in any one of a number of hunting areas and have a chance for a great ram if you're lucky enough to get a tag.

Elk

Montana's elk have always dominated the statistics for states and Canadian provinces. The dominance received some rather stiff competition in the last six years, as 15 new entrants moved into the top 100, with only one of the 15 from Montana.

Since Montana had only one new entrant but lost two in the new top 100, the net loss was one. However, its closest rival, Alberta, had a net loss of two and Idaho had a net loss of four, so that Montana now has 19 of the top 100 elk, while Wyoming, which gained four, moved into a tie with Montana. Alberta dropped to 15 of the top 100, Idaho to 12, Colorado gained one and moved to 11, and Oregon gained three to total eight.

Although Wyoming gained four during these six years to tie Montana, three were late-filed entries, one taken in 1886, another in 1930, and another in 1950, while the fourth was a pickup. In other words, none of Wyoming's four was taken by a hunter in recent years.

By contrast, Montana's one entry in the top 100 elk category was taken in the six year-period covered by the interim record books (as were Montana's sheep entries, all of the cougar entries, and many of the deer entries).

Cougar

What a pleasant surprise the mountain lion turned out to be for Montana in the second of the awards books. Of 26 entries in the first book in 1980-82, Montana had only one. In the second period, from 1983-85, there was an explosion of record cougars taken in Montana. Ten of 41 in that three-year span came from Montana, far eclipsing Colorado (seven) and Idaho (five). Not only is the quantity impressive, but the quality is even more so. Counting the unverified measures of the two big cats taken in Lincoln County in 1985, Montana produced three of the top five cougars for that three-year period.

Non-typical Mule Deer

Although never a threat to the consistently good mule deer found farther south in the Rockies—and with only one typical mule deer in the six-year span coming from Montana—there is a rather pleasant surprise in the non-typical category. Four of the top 25 non-typical mule deer entered during 1983-85 were taken in Montana.

Typical White-tailed Deer

Finally, the predictions of many hunters and guides that world-record whitetails someday would be taken in Montana are turning out to be accurate. Again, after an unimpressive showing in the first three-year period (1980-82), the last three years demonstrated impressive results—with five of the top 30 entries coming from Montana.

Now that trophy white-tailed deer have joined trophy bighorns as the poachers' big item for illegal traffic in wild animal heads, it's more vital than ever to protect Montana's wildlife from the game thieves we scorn as poachers (see "Operation Trophy Kill,' *Montana Outdoors*, July/August 1986).

We all know there are trophy racks hanging over fireplaces, nailed up in barns and sheds, and lying in barnyards all over the country. Occasionally,

someone files a late entry for these overlooked animals; for example, the largest elk by far entered in the last six years' trophies was taken more than a century ago (1886) in Wyoming. Undoubtedly, there are many reasons for not entering a trophy animal in Boone and Crockett records—such as ignorance of the records, diffidence, contrariness, the nominal costs, failure to follow fair-chase rules, the bother involved, philosophy of hunting, and for other reasons.

But all in all, the new entries indicate that trophy animals not only are alive and well and living in Montana—but trophy animals are flourishing in the Treasure State.

* * * * *

•*Watch the Nov./Dec. issue for a report on a bulletin published by the Montana Department of Fish, Wildlife and Parks, "Montana Big Game Trophies. "—Ed.*

TIP-MONT Spells Success

During the past year, calls to a toll-free number have led to investigation of 132 suspected poaching cases. These investigations led to arrest of 73 individuals who paid $29,100 in fines for violating fish and game laws. Montana's **TIP—Turn In Poachers—** program continues to confirm that it is the success in apprehending poachers that it promised to be.

The 1985 Montana Legislature authorized the Department of Fish, Wildlife and Parks (DFWP) to implement the TIP program to try to reduce the loss of the state's valuable wildlife resources to poachers. The Legislature also made it possible for the department to pay cash rewards to those reporting poaching activities.

One caller was paid a $750 reward after his tip led to an investigation resulting in fines of $13,390 and seizure of three grizzly bears, one mountain goat mount, one black bear cub mount, three whitetail mounts, four mule deer mounts, one 6x7 elk rack, one 4x4 mule deer rack, one 5x5 bull elk rack, one 6x7 white-tailed deer rack, and six sets of antelope horns. The court also revoked the defendant's hunting privileges in Montana for life.

Cases for which rewards were given during the past year involved the illegal taking of: two moose, eight elk, 20 deer, four grizzly bears, three mountain goats, five black bears, one mountain lion, and one Rocky Mountain bighorn ram.

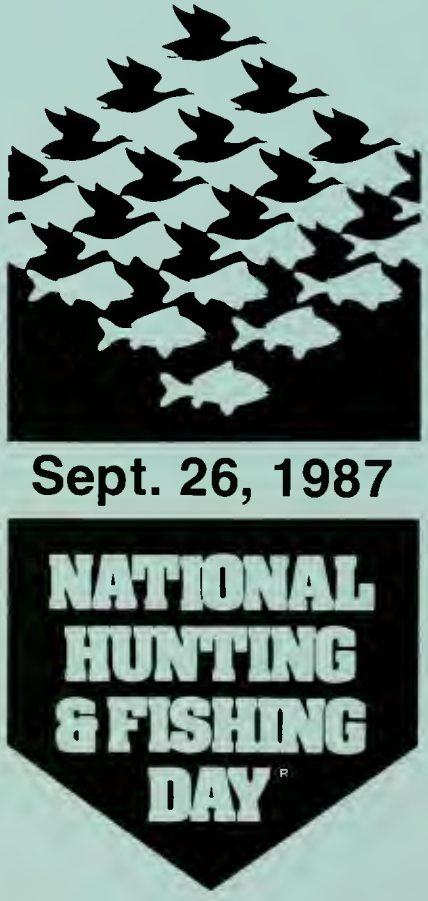
According to Erv Kent, administrator of the DFWP's Law Enforcement Division in Helena, the vast majority of the callers to the TIP-MONT number aren't concerned about a reward. "Obviously," he noted, "most of those who call are just concerned citizens."

The program's five-member board, appointed by DFWP Director Jim Flynn, decides on rewards. Decisions are based on the seriousness of the poaching incident and the value of the tip in apprehending a suspect. Persons don't have to be convicted for the caller to receive a reward, Kent said.

To report poaching activities, the number is 1-800-TIP-MONT (847-6668) for Montana callers. The toll-free number for out-of-state callers is 1-800-327-3212.

Hegstad, Aderhold Honored

Honors have come to two individuals because of their work in behalf of the Montana Department of Fish, Wildlife and Parks.



Spencer Hegstad, who served on the Montana Fish and Game Commission for 11 years—seven as chairman—was granted honorary membership in the Western Association of Fish and Wildlife Agencies. In naming him a life member, the association noted: "During those years, his personal interest and commitment to resource conservation went far beyond what his duties as commissioner would have been....His support of wild trout management and special regulations led to dramatic increases in number and size of trout in many of Montana's blue ribbon rivers....Wildlife likewise benefited from Spencer's efforts in acquiring big game winter range....Spencer was an advocate of maintaining quality hunting in Montana through new and innovative special regulations."

The citation continued, "Probably Spencer's greatest contribution while serving as Commission chairman was his ability to communicate...."

The Montana Wildlife Federation recognized Hegstad as its "Conservationist of the Year" and Mike Aderhold as its "Conservation Communicator of the Year."

In honoring Hegstad, federation officials listed some of the same accomplishments cited by the Western Association, but also noted he set the tone for many department policies and positions. He will always be remembered as "someone who would take a strong and difficult stand while diffusing frustrations and maintaining the integrity of the resource," the federation noted.

Aderhold was chosen as the "Conservation Communicator of the Year" on the basis of his "outstanding achievement in effectively conveying the conservation message and creating public awareness of conservation issues in the news media." The letter nominating Aderhold noted, "His sincerity, integrity, and credibility make him a sought-after expert and advisor of sportsmen, both in his region [Kalispell] and throughout the state...."

Aderhold joined the department in 1973 as the information officer in Glasgow and moved to a similar position in Kalispell in 1980. He has also worked for four federal agencies.

Their awards were presented at the federation's annual meeting in Kalispell in late May.

WILD-ly Popular Activities

More than three-fourths of adult Americans participate in some form of wildlife-related recreation, according to a U.S Fish and Wildlife (USFWS) survey.

"These preliminary numbers support what we have suspected—that more Americans than ever before are engaging in wildlife-related activities," said USFWS Director Frank Dunkle, a former director of the Montana Department of Fish, Wildlife and Parks.

"People are photographing wildlife, whale watching, bird-watching, canoeing, hiking, and biking in unprecedented numbers," added Joyce M. Kelly, president of Defenders of Wildlife.

More than 141 million Americans aged 16 and over are engaged in feeding wildlife, taking their pictures, or hunting and fishing for them, the study found.

That amounts to 78% of all Americans in that age group, said the report, based on a Census Bureau survey of the activities of 100,000 households in 1985. Spending on wildlife-related activities totaled $55 billion.

Overall participation is up from about 99 million people, who spent $41 billion five years earlier, according to the USFWS, which conducts such surveys every five years.

In addition, the report found more than 46.6 million fishermen and women and 16.7 million hunters across the nation.

The figures add up to more than the overall total of 141 million because some people participate in more than one activity.

Because people who enjoy such activities tend to be involved in wildlife conservation, the large number of participants is a good sign for the future of wildlife resources, Dunkle said in a statement. Kelly called for more government attention to this group. "The interests of this constituency naturally coincide with effective programs for all wildlife which look far beyond traditional game management practices," she added.

Among the 109.7 million participants other than hunters and anglers, there were 82.5 million who fed wild birds and 18.1 million wildlife photographers. Nearly 30 million took trips for the specific purpose of watching wildlife. These folks spent $14 billion on binoculars, bird feeders, cameras, transportation, and other costs associated with these activities.

Anglers accounted for 46.6 million people, one in four adults. Of them, 40.2 million fished in freshwater and 14.1 million in salt water. They spent $28.2 billion, an average just over $600 each, and spent an average of 21 days in the activity.

Hunters also spent just over $600 apiece on their sport, averaging 20 days afield each. Some 12.5 million hunted big game, 10.8 million small game, and 5 million sought migratory birds.—*from Associated Press*

Hunting: Smart Money

If you are an average hunter, chances are you are better educated, make more money, and—you can't win them all—are older than the national average.

These findings, and other equally fascinating statistics, were revealed in a recent "Hunting Frequency and Participation Study" conducted for the National Shooting Sports Foundation.

The demographic profile of the hunter revealed that he is more affluent than the average American male. The average hunter's household income is $26,675, nearly $3,000 more than the national average of $24,000. Being better educated goes hand-in-hand with being more affluent, and 49% of all the hunters polled had attended college, compared with the national average of 39%. Similarly, nearly one of four (23%) of the hunters have professional/managerial occupations.

In the can't-win-'em-all category, the hunters were an average of 38 years old—somewhat older than the average American male, who is 32.

The extent of the dedication to hunting was one of the most impressive elements of the study. Hunters have a strong allegiance to their sport, as do participants in such lifetime sports as golf and tennis. In fact, the average hunter (38 years old) has been actively engaging in the sport for 23 years. Therefore, this demographically above-average American hunter, presumably with the latest copy of his favorite author in one pocket and his hefty bankbook in the other, started pursuing his sport at age 15.

To take it a step further, the study indicated that the hunters interviewed who were over 50 years old had been involved in the sport for an average of 41 years.

The young and the old all enjoy the shooting sports and reap long-lasting enjoyment. And hunters are consistent, with 95% of them having hunted each year since 1982.

What do these dedicated sportsmen stalk? Deer, crow, and turkey are being hunted more frequently than in 1981, and deer remains at the top of the list as the most popular species to hunt. Deer is not only the most commonly pursued game, but also has increased in hunting frequency faster than any other game. Upland game is the most popular form of hunting (94%), followed by big game hunting (85%).

What types of firearms do our average hunters own? These sportsmen have 2.7 shotguns, 2.4 centerfire rifles, and 1.3 rimfire rifles among their 6.4 guns. In addition, 55% of the hunters surveyed own one or more handguns, and one-third of these use their handguns for hunting.

Nearly 20% of the nation's hunters can be classified as "two-season" hunters, hunting with both firearms and bow and arrow.

Although hunters are steadfastly sticking with the sport and there has been little change in hunting frequency, the picture isn't entirely rosy. When hunters were asked what they thought was the sport's No. 1 problem, gaining access to hunting land topped the list by a narrow margin (19%). The other negative influences that ranked close behind were: crowded hunting areas (18%) and finding time to go hunting (17%).

Gaining access to land is more of a problem in the South than in other regions and proved to be a particular problem for waterfowl hunters. Wetlands are increasingly more difficult to gain entrance to than other acreage.

Hunting is alive and well in America. It has long been one of America's great sporting traditions, and the study revealed that it is continuing its popular heritage.—*National Shooting Sports Foundation.*

CONTRIBUTORS

• If we gave a "prolific prose award" for each issue, **Tom Palmer** would win it for Sept./Oct. He has written two major articles: "The Here and Now Happy Hunting Ground," which leads off this issue, beginning on page 2, and "Bighorns on the Rise" (page 27). The first is about the Missouri Breaks, of which Palmer writes, "During the day, although we would...travel more than 150 miles, we would pass no gas station, convenience store, fast-food restaurant, or telephone booth." Empty? Not quite. This forbidding, desolate stretch of largely unroaded country is home to white-tailed and mule deer, antelope, bighorn sheep, and a host of creatures that fly. And elk. The Breaks is the preferred habitat for a renowned elk herd estimated at 1,500 head—"one of the most majestic elk herds in the world." As Palmer notes, it is majestic by design; read his article to discover why.

• In the 1930s, the bighorn sheep was a "casualty of progress"—it was just about history. But bighorns came back. Nowhere on the continent are there healthier herds or bigger bighorns. The upswing began with arrival of Pittman-Robertson funds in 1941, enabling the department to begin a bighorn sheep research and management program. Montana's success is the result of "aggressive wildlife management, ongoing transplanting efforts, and more favorable conditions." Palmer previously was a reporter with the Helena Independent Record; he is now a writer with the department's Conservation Education Division in Helena.

• "The father of wildlife management." "The Dean of Deans" of wildlife management. A "prophet" of the wilderness preservation movement in America. "The father of ecological ethics." Aldo Leopold has been described in these ways, and in many others. As a way to mark the 100th anniversary of his birth, some mention of his "extraordinary contributions to the art and science of resource conservation" seems appropriate. Turn to page 7 for a look at the life of "The Man Who Moved Mountains." **Tom Butts** is a fish and wildlife biologist stationed in Roundup. He is also an amateur videographer and writes an occasional column, "Outdoor Forum," for the Roundup Record-Tribune.

• "Montana's Trophy Bonanza" (page 11) continues. In reporting on recent updates of the Boone and Crockett record books, **Norman C. Roettger, Jr.**, notes Montana had three of the top five bighorns in the 1983-85 record book, 10 of 41 cougars, four of the top 25 non-typical mule deer, and five of the top 30 typical white-tailed deer; Montana now has 19 of the top 100 elk, a tie for the lead with Wyoming. Roettger, a federal judge in Fort Lauderdale, Fla., has hunted big game in Montana every year since 1975.

• As **Mike Aderhold's** article unfolds, you will be fascinated by the history of wolves in Montana, wolf control, recent developments with the wolf in other places in North America, and wolf management in Minnesota. As he emphasizes, "Most important, one needs to appreciate the fact that the successes of North American wildlife conservation are rooted in popular support. The people affected and their economic and recreational interests play a big part in the success of any endangered species recovery program." "All for the Wolf" urges a "simple, workable, locally supported program for the wolf." Aderhold is the department's information officer in Kalispell; as this issue's "The Catchall" section reports, the Montana Wildlife Federation recently named him "Conservation Communicator of the Year." His wolf story, beginning on page 15, shows you why.

• "Caping in the Field" explains how to do just that. As **Gerry Schroeder** cautions, bagging a trophy elk you want to have mounted is only the first step. The next steps can spell the difference between a superb mount and one you store in a closet. Turn to page 24 for step-by-step pictures and text that will assure your success. Schroeder is a guidance counselor in the Bozeman public school system and is "wild" about hunting, fishing, and taxidermy, not always in that order.

• **Greg Noose's** "Perspectives" of the Stillwater River are "a subtler consciousness." "Of Nature and a River" has to do with seasons, and how natural forces can change the face of a river forever. Noose has written for *Montana Outdoors* previously ("Approaching the Mountain," May/June 1984). He is sheriff of Stillwater County and writes a column, "Montana Rescue Update," for a Montana Emergency Medical Services Association publication. He also has written rescue-related articles for law enforcement journals. Turn to his piece on page 32.

• "On Safari for Prairie Goats" is the Serengeti come to Montana. As **Michael Korn** writes, in Montana, hunting antelope is the closest thing we have to an African safari. "There's the quarry, the chase, the stealth, the grandeur of the open plains." There's also some non-Serengeti elements such as getting skunked by your wife—who has been given Hunting Lesson No. 1 by your best friend, Great White Hunter Milo. Korn has also illustrated the article, which begins on page 34. He is director of the Montana Folklife Project and his self-described preoccupation with hunting makes this article a natural.

• Thanks to **Shirley Johnson**, Missoula, for her back cover wolf. Prints from her series, "The Endangered Ones" (of which the wolf is one) are still available. She will be exhibiting her bird paintings in Japan in summer of 1988. She has also completed a series on "Teddy Bears" and "Panda Bears." For more information about her work, contact her at No. 6 Greenbrier Drive, Lincoln Hills; Missoula, MT 59802.

• Thanks also to **Robert Neaves**, Corvallis, for his scratchboard wolf. He recently won "Best of Show" at the Cheyenne Audubon Society competition and has just opened his new gallery in Hamilton (Robert Neaves Studio, 109 S. Fourth St.; Hamilton, MT 59840).

• *MO* wishes to thank the following photographers for their contributions to this issue: **Julie Burke**, Glasgow; **Harry Engels**, Helena; **William Haglan**, Lewistown; **Louis M. Kis**, Kalispell; **Neal** and **Mary Jane Mishler** and **Conrad Rowe**, Great Falls; **Debi Ottinger**, Bozeman; **Bill Thomas**, Missoula; and **Allen Wiederrich**, Crane.

ALL FOR THE WOLF

by Mike Aderhold

graphics: Robert Neaves
(courtesy U.S. Forest Service)

On Feb.25, 1987, Montana Gov. Ted Schwinden wrote to the U.S. Fish and Wildlife Service's (USFWS) Denver Regional Director Galen Buterbaugh and said that the state of Montana could not support the latest draft of the federal government's Northern Rocky Mountain Wolf Recovery Plan.

The governor's letter, and the eight pages of comment that accompanied it, addressed three major concerns: (1) the state's need to have adequate management flexibility to control wolf numbers and their distribution, (2) the need for assured federal recovery goals, and (3) adequate federal funding to implement the federal plan.

In the governor's package, the Montana Department of Fish, Wildlife and Parks (DFWP) proposed an alternative wolf restoration program. If Montana could gain congressional authority and USFWS permission to take care of the wolf on its own, the state would integrate wolf monitoring, management, and recovery into its game management program. The Montana Fish and Game Commission would proceed under authority of the 1973 Montana Nongame and Endangered Species Act (87-5-101 MCA). No federal Endangered Species Act funding would be requested. Federal moneys currently allocated to wolf management could be spent on species truly threatened with extinction.

To understand this position, one needs to know a little about wolves, the history of wolves in Montana, wolf control, game management, recent developments with the wolf in other places in North America, and wolf management in Minnesota. Most important, one needs to appreciate the fact that the successes of North American wildlife conservation are rooted in popular support. The people affected and their economic and recreational interests play a big part in the success of any endangered species recovery program.

In 1969, a University of Montana history student, Edward Curnow, published a thesis, "The History of the Eradication of the Wolf in Montana." His bibliography included almost a hundred references: manuscripts, newspapers, books, public documents, and personal interviews.

Curnow concluded that in the 1860s in Montana, there were several hundred thousand wolves. Before 1860, there was no organized effort to kill wolves in the West. While Native Americans and early trappers undoubtedly killed a few wolves that raided their camps and food caches, there is no evidence wolves were regarded as a serious threat.

Discovery of gold in the 1860s brought permanent settlers to Montana. European pioneers arrived in great numbers with their families, livestock, and negative attitudes and traditional fears about wolves.

Markets for buffalo meat, robes, and hides started the eradication of the great bison herds. During the 1870s, wolves thrived on the abundant supply of bison carrion left on the plains. Wolf populations probably increased, and market hunters known as "wolfers" took advantage of the situation. During the winter, when wolf hides were prime, they poisoned wolves using bison carcasses laced with strychnine. Tenure of the independent professional wolfer lasted from about 1860 to 1885. Curnow estimated that between 1870 and 1877, wolfers

killed over 100,000 wolves a year in Montana.

The last market hunting season for buffalo in Montana was the winter of 1882-83. By 1884, buffalo had virtually disappeared. The wolves adapted to a new and growing prey base—cattle and sheep. This understandably outraged the ranchers and settlers who were struggling to tame the land and build their ranches and farms.

Bounty laws were passed to encourage wolf control. In some cases, a bounty hunter could collect state, county, and private bounties for a single animal. Every means of destroying wolves was used, including poisoning, shooting, trapping, and killing pups in their dens. During the 35-year period from 1883 to 1918, the state of Montana paid bounties for 80,730 wolves. In 1933 the Montana Legislature repealed the general bounty law—but the wolf continued to be listed as a "predator," subject to year-round killing.

Late in 1914, after most of Montana's wolf population had been exterminated, the U.S. Bureau of Biological Survey (which later became the U.S. Fish and Wildlife Service) began a systematic westernwide predator control program to relieve livestock depredation and also to encourage recovery of beleaguered big game populations on federal land. Professional trappers were hired to help eliminate a variety of predators and rodents. As a result, the wolf in Montana was eliminated as a self-sustaining species by 1926. Reports of scattered pack activity continued into the early 1930s. The last wild wolf killed under this program was taken on strychnine bait in Powell County, northwest of Helena, in 1944.

MODERN ERA

The Fish and Game Department continued to receive regular wolf reports until 1933. A few lone wolves probably survived the major predator control period (1885-1930) but there is no evidence of wolf production or documentation of wolf packs after the 1920s. Few wolf reports exist for the period from 1940 through the early 1960s. Then, in the late 1960s, the number of Montana wolf reports began to increase.

In 1973, University of Montana Forestry Professor Robert Ream started the Wolf Ecology Project as a natural extension of his wilderness recreation studies. The object of this program was to gather and disseminate information about wolves in the northern Rocky Mountains. Through workshops, lectures, and interviews with interested people, a network for gathering wolf information was established.

The Wolf Ecology Project collected 424 wolf reports from Montana, Idaho, and Wyoming between 1972 and mid-1979. Each report was rated and 315 were classified as "good" or "probable"; 109 were rejected as "questionable" but possible.

A University of Montana wildlife student, Gary Day, analyzed 278 of the "good" reports and published the results in a 130-page, 1981 master's thesis, "The Status and Distribution of Wolves in the Northern Rocky Mountains of the United States."

Day found the reports were concentrated in two areas: The northwestern corner of Montana had 190 records, and the southwestern Montana/Idaho border area, west of Yellowstone National Park, contained 84 reports. Only four reports occurred in the intervening area.

On April 8, 1979, a lone female wolf was trapped and radio-tagged by the Wolf Ecology Project in the Flathead River Valley in British Columbia, about five miles north of the border. This was the first wolf ever radio-collared in the northern Rocky Mountains.

During the two years this animal was intensively followed, there was no evidence of another wolf in the Flathead drainage. In February and March of 1982, tracks of a pair of wolves were found in Glacier National Park and followed north into Canada. In the spring of 1982, a litter of seven pups was produced a short distance north of the border. By the summer of 1983, this family unit was traveling together as a pack. This group became known as the "magic pack" and received national attention.

Since 1983, there have been an ever-increasing number of wolf tracks, sightings, and other signs of wolves in the Flathead Valley both north and south of the border.

In fall 1985, members of the "magic pack" moved south and wintered in Glacier Park. Early in the spring of 1986, denning and later summer weaning of five pups was documented south of Polebridge, Mont. This was the first documented evidence of wolf production in Glacier National Park and Montana in more than 50 years.

STATUS OF THE WOLF TODAY

During the winter of 1986-87, wolves were photographed on the Blackfeet Reservation east of Glacier Park and reported in a dozen other areas throughout northwestern Montana. At a wolf symposium in May in Washington, D.C., Dr. Ream reported at least 20 to 30 wolves and maybe two or three packs in and around Glacier Park.

By mid-July 1987, researchers with the Wolf Ecology Project had documented three wolf litters: one in Glacier Park (six pups), and two just north of the park in Canada. A fourth litter was reported a week later on the Blackfeet Reservation a few miles east of the Glacier Park boundary. If all of these pups survive, more than 18 wolves will be added to the area's population.

The gray wolf (*Canis lupus*) is the largest wild member of the Canidae or "dog" family. This family includes 35 species worldwide. Their most striking feature is their opportunistic and adaptable behavior.

Only two wolf species exist today. The extremely rare red wolf (*Canis rufus*), once found throughout the southeastern United States, was officially listed as extinct in the wild in 1981. There are plans for an experimental release of four pairs of captive red wolves this year on the 118,000-acre Alligator River National Wildlife Refuge in northeastern North Carolina.

The gray wolf is thought to exist in wild areas of more than 30 countries around the world north of the tropics. Some taxonomists have divided the gray wolf into 32 subspecies or races, 24 of which once inhabited North America. Montana

Three proposed wolf recovery areas in relationship to the current Canadian wolf range (from "Wolves of Northern Idaho and Northeastern Washington," by H. Jerome Hansen).

Canadian wolf range □

had two of these races: the northern Rocky Mountain wolf (*Canis lupus irremotus*) in the west and the buffalo wolf (*Canis lupus nubilus*) in the east.

The northern Rocky Mountain wolf was one of three subspecies listed as "endangered" in the United States in 1973. In the mid-'70s, there was some scientific debate about the identification and even presence of some of the 24 wolf subspecies in North America. As a result, in 1978, the entire species (*Canis lupus*) was listed as "endangered" throughout the lower 48 states, except in Minnesota where it was classified as "threatened."

In North America, before colonization, the gray wolf enjoyed the widest distribution of any land animal (the red fox today has that distinction) and roamed 7 million square miles.

In the United States today, wolves are limited mainly to Alaska and northeastern Minnesota. At this time, there appear to be fewer than 30 wolves in northwestern Wisconsin, fewer than 30 in northern Montana, fewer than 30 in Michigan's Isle Royale National Park in Lake Superior, and fewer than 20 in northern Idaho/northeastern Washington. The total number of wolves in North America is unknown, but according to the Audubon Society's 1986 Wildlife Report, Minnesota is thought to contain about 1,200 (1985), Alaska about 10,000 (1983) and British Columbia, Alberta, and Manitoba about 15,000 (1983). A total North American population estimate of 30,000-40,000 is conservative, but it is the best available estimate.

Worldwide, the Wolf Specialist Group of the International Union for Conservation of Nature and Natural Resources gives the following 1979 rough estimates for the gray wolf: Asian USSR, 50,000; European USSR, 10,000; Yugoslavia, 3,000-4,000; Rumania, 2,000; Greece, 2,000; Iran, 1,500; Poland, 200; Spain, 200; Italy, Finland, and Israel, 100. At least 20 other countries are thought to have wolves but there is not enough information to make an estimate.

There is no question that the gray wolf is rare in Montana—but in the world and North America, it is in far better condition than at least 10 other species in the dog family and many of the animals on the U.S. Endangered Species List or species awaiting listing.

THE RECOVERY PLAN

A federally appointed wolf recovery team began developing a wolf recovery plan in 1975, and a draft Northern Rocky Mountain Wolf Recovery Plan was released in January 1978. A draft was signed May 29, 1980. This plan was developed before there was any evidence of a wolf pack in Montana. It detailed the animal's history, habitat requirements, and known status, and listed a cost and time schedule for needed research. Unfortunately, this plan received little attention and was not implemented.

In 1982, in response to concerns and comments from a number of biologists and administrators, the USFWS decided to revise this recovery plan. The new draft proposed a specific management scheme and discussed strategies, tasks, policies, and actions thought essential for the recovery and survival of the wolf in three areas: the Glacier-Bob Marshall ecosystem, the Yellowstone National Park ecosystem, and the central Idaho wilderness areas. The plan suggested that 10 breeding pairs in two of the three areas might be sufficient to downlist the animals from "endangered" to "threatened" status. A zone management plan was proposed for wolf control. In the center zone, the heart of the available recovery area, all wolves would be given top priority. In the next zone, a buffer area, wolves that disturbed livestock would first be moved back into the wilderness; if they got into trouble again, they could be killed. In the third, outermost zone, wolves could be relocated or killed even if they were only hanging around livestock.

In comments sent to the USFWS Jan. 30, 1984, the DFWP stated that it could not support this recovery plan. It was simply not specific enough in sections dealing with control, recovery goals, and financial support. This position was repeated by Gov. Schwinden in a formal response sent Feb. 4, 1986. On Oct. 7, 1986, the DFWP released a 3-1/2-page position statement repeating the same concerns.

A second revised draft was sent from Washington, D.C., on Dec. 30, 1986. The management flexibility provided to the states to control wolves had not changed from previous drafts. Killing wolves in Zones II and III was still questionable. The plan did not address enhancing big game populations to compensate for additional mortality caused by wolves. Delisting of the wolf in Montana still depended on wolf recovery in Wyoming and Idaho. The first year's cost was estimated at $300,000 with no assurance of federal funding. The plan mentioned "wolf dispersal corridors," which just confused the issue. There were still some problems in the definition of words like "significant," "evidence," and "recovery."

Specific recovery goals were left open to amendment as "new information becomes available." In short, the recovery plan was still not adequate from Montana's perspective, hence the response in this article's first paragraph.

STATE ENDANGERED SPECIES PROGRAM

In 1972, the International Association of Game, Fish, and Conservation Commissioners (now the International Association of Fish and Wildlife Agencies) and The Wildlife Society (a national professional organization of wildlife biologists) developed a model state nongame and endangered species law. The 1973 Montana Legislature passed this law, with modifications, and it became effective July 1, 1973 (173 days before the final vote on the national Endangered Species Act of 1973).

In its act, the Montana Legislature gave the DFWP the assignment of conserving resident species of endangered and threatened fish and wildlife. The Legislature also granted the department authority to conduct nongame and endangered species research, acquire habitat for their use, and develop management programs for these species. The 1975 Montana Legislature changed the classification of the wolf from a predator to a state endangered species, giving it year-round protection.

The Senate and House congressional versions of the federal Endangered Species Act of 1973 differed on which level of government was to have primary responsibility for carrying out the endangered species program. The House favored the federal government, and the Senate favored state government. In conference committee, a compromise was hammered out. The Secretary of the Interior was given jurisdiction over the national program. The USFWS was made the agency responsible for providing overall coordination, for consulting with other federal agencies, and for providing state support and some leadership for endangered species recovery efforts. The states were given primary responsibility for carrying out the endangered species program.

For two animals, the grizzly bear and the gray wolf, this arrangement has been less than perfect. Part of the problem is that these two animals are viewed a little differently in Washington, D.C., and Denver than they are in Libby or Choteau, Mont. The farther away one is—physically, mentally, or economically—from the range of these animals, the more philosophical, ideological, and dogmatic one can afford to be.

It also makes a difference whether one is responsible for, and involved in, the solving of day-to-day problems (real and imagined) connected to these animals, or whether one enjoys the luxury and time to second-guess the always strained decisions.

Last, the state's focus is on the overall health of an animal's population. Critics have sometimes focused on small portions of a population or even on individual animals.

In a different light, it's easy to see why the state's more pragmatic view has not always been well received.

photo: LOUIS M. KIS

WOLF CONTROL

The most controversial issue related to wolf recovery is that of controlling "problem" or depredating wolves. Most of Montana's concern is related to the way wolf control has been handled in Minnesota.

Minnesota's wolf country, roughly 40% of the state, has about 1,200 wolves. This portion of Minnesota contains about 9,800 farms, with about 91,000 sheep and 234,000 cattle. About one-fifth of one percent of these farms are losing some livestock to wolves in a given year. The annual loss works out to about five cows and 12 sheep per 10,000 animals grazed.

Minnesota's eastern timber wolf (*Canis lupus lycoan*) was another of the original wolf races listed as endangered in 1973. In general, animals listed as "endangered" may be killed only when there is an immediate threat to human safety, and *not* when they pose a threat to livestock or other property.

In 1978, the state of Minnesota, and a majority of its farmers and hunters, persuaded the USFWS to change the wolf listing from "endangered" to "threatened." This allowed federal control agents to kill wolves suspected of livestock depredation. Since then, the USFWS has conducted a very selective program designed to kill individual problem wolves. Trapping is restricted to within a quarter-mile of farms with losses. It is also restricted to 10 days, unless further losses occur, in which case trapping can be extended up to 21 days. Wolf pups are released since they cannot kill large livestock. This program has resulted in an average kill of about 25 wolves a year.

In 1983, the Department of the Interior proposed transfer of Minnesota wolf management to the state which intended to reopen a wolf trapping season. Trappers would be permitted to take a limited number of wolves yearly and sell the hides. The state saw this as a way to help control depredation problems and generate some needed local support and revenue for enforcement, wolf management, and damage compensation.

In 1984, the USFWS issued regulations permitting this limited sport season on the wolf. This move was opposed in court by 14 conservation groups. The Federal District Court ruled against transfer of wolf management to the state. The USFWS appealed and, in February 1985, the Eighth Circuit Court of Appeals in St. Louis ruled that the taking of "threatened" species may be permitted *only* when it is necessary to relieve "extraordinary population pressures within an ecosystem." The USFWS and Minnesota had to "prove" this situation in order to proceed; most biologists believe gathering such information is cost prohibitive and may be technically impossible.

Minnesota's wolf management proposal was consistent with the recovery plan for the eastern timber wolf approved in 1978. This recovery plan provided for sanctuary zones in three areas, where wolves would be completely protected. Surrounding these sanctuaries was a zone where controlled hunting and trapping could occur within well-defined limits. A fifth zone was the agricultural and heavily settled remainder of Minnesota where wolves would not be protected. The court decisions have prohibited this program and brought into question similar proposals elsewhere.

The current federal wolf recovery plan does not address what has become the reality of managing a threatened and endangered species. Recovery plans with legally and scientifically developed management schemes can be easily compromised by litigation. The letter of the law as interpreted by the courts now controls when, how, and by whom a threatened species can be removed. The problem is most noticeable with large predators such as the American alligator, grizzly bear, and now the wolf.

This problem is so acute that on April 16, 1985, the International Association of Fish and Wildlife Agencies (IAFWA), which represents every state and province in the United States and Canada, testified on the issue before the congressional subcommittee responsible for overseeing the Endangered Species Act. The testimony said: "Beyond the wolf situation in Minnesota, our immediate concern about this decision is its implications for long-term preservation of the grizzly bear in Montana, where hunting of the species is now conducted on a limited basis as part of the state's management strategy. The results of Montana efforts have been maintenance of the only prospering grizzly population in the lower 48 states."

In testimony on March 17, 1987, supporting reauthorization of the Endangered Species Act, the IAFWA further stated that the Eighth Circuit Court decision in the Minnesota wolf case should be legislatively overruled. The organization stated that the decision negates congressional intent, misconstrues the differing protection afforded endangered and threatened species, and will impair the future effectiveness of the endangered species program.

DAMAGE COMPENSATION

The latest draft of the wolf recovery plan contains an interesting section on payments for wolf depredation on livestock. Such compensation is an important but expensive part of wolf management in agricultural areas.

Minnesota has a 1978 law where up to $400 per animal is provided for livestock killed or injured by wolves. Responsibility for verifying claims of wolf depredation is given to the local warden. The county extension agent determines the market value of the livestock.

From 1977 through 1980, the Minnesota Department of Agriculture paid farmers a total of $72,381.82 on 86 of 93 claims. In an average year, about $18,100 was paid to 16 farmers for 21 claims. From 1975 through 1980, the total number of complaints, number of verified livestock kills, and number of farms with verified losses remained fairly stable.

Verifying wolf depredation on livestock can be difficult, due to infrequent checks of livestock, other predators, and the wolf's habit of scavenging. About 73% of the calves for which compensation was paid in 1979 were calves that could not be accounted for. No remains were found, and no wolf involvement was verified.

Of the four western Canadian provinces, only Alberta compensates farmers for losses of food-producing livestock to wolves. Claims are reviewed by regional committees of private farmers and government representatives. Alberta pays

80% of assessed value for confirmed losses and 50% for probable losses.

Of 365 Alberta claims during 1974-1980, 244 were confirmed wolf kills. Of 2,347 animals approved for payment because of wolf depredations, 1,636 (70%) were missing. During 1975-80, a total of $304,993 was paid on 319 claims.

BIG GAME DEPREDATION

Wolf problems are not limited to livestock. Wolves live for the most part on big game; they can affect game populations and thereby compete with humans.

Wolves are the most studied and best understood North American carnivores. Their feeding habits and digestive systems are adapted to a feast/famine existence. They commonly go without food for three or four days and then gorge. Wolves may eat up to one-fifth of their body weight at one time.

On the average, a mature wolf consumes between five and eight pounds of meat a day. Wolves have been observed eating grass, berries, insects, fish, waterfowl, beavers, small rodents, and upland birds, but their major sources of meat are big game animals—i.e., deer, elk, moose, caribou, and bighorn sheep. Wolf populations depend on food abundance, and their predation can depress growth rates and density of prey species. Wolves can prevent high peaks and deep declines in prey populations.

Research has shown wolves responsible for low moose calf survival in Alaska, depressed white-tailed deer populations in parts of northeastern Minnesota, and low black-tailed deer numbers on Vancouver Island. Early in 1984, the British Columbia Ministry of the Environment released five research and technical reports showing that populations of elk, moose, caribou, and mountain sheep were decreasing in areas at the time wolves were increasing.

The Winter 1986-87 issue of *The Bugle*, the quarterly journal of the Rocky Mountain Elk Foundation, featured an article, "Wolves and Elk in Alberta's Brazeau Country" (adjacent to Jasper National Park). One pack, which numbered nine in 1983-84 and 10-14 in 1984-85, preyed on elk, moose, mule deer, bighorn sheep, and wild horses. This pack made a kill about every 2.5 days during March-April 1984 and every 2.6 days during January-March 1985. The average kill rate during two winters was .039 big game animals per wolf per day or about eight prey per wolf over a 200-day winter. Assuming comparable kill rates throughout the year, the pack took 140 to 150 ungulates annually, or about 79 elk, 32 deer, 20 moose, 10 bighorns, and four wild horses. This is roughly 14 prey animals per wolf per year.

It should be noted that in each of the documented declines, unusual circumstances accentuated the role of wolf predation. Decreasing quantity and quality of big game forage, harsh winter weather, and decreasing alternative prey combined over several seasons enabled the wolf population to depress the principal prey in a local area. Most of the literature on wolf-prey relations indicates that wolves usually *do not* deplete a healthy prey population.

Short-term depression of a big game population will need to be treated by regulating wolf numbers or reducing hunter harvest, and probably both. A long term management goal will need to involve systematic habitat management aimed at improving the ungulate population, thus assuring its continued health and replacing some of the impacts of the wolf. The wolf recovery plan assumes the availability of prey and does not mention improving conditions for prey species.

RECOVERY GOALS

The proposed wolf recovery plan calls for 10 breeding pairs in each recovery area. Since only the dominant male and female in a pack usually breed, 10 pairs means 10 wolf packs. Pack size is determined by: (1) availability of space free of other packs, (2) type and abundance of prey species, (3) overall wolf population and (4) the personal disposition of the wolves involved. Packs are typically extended families of five to eight individuals, but they can range in size from three to 20.

The size of a wolf's territory is a function of prey density, type, availability, and the number of wolves in a pack. Wolf territories are not rigid. They fluctuate in size over time. Territories are roughly defined by scent markings and by hunting activities. As reported in the literature, territories range from 40 to 1,000 square miles.

Wolves are secretive, elusive creatures. Dr. L. David Mech of Minnesota is generally regarded as one of the leading wolf authorities in North America. He has been studying wolves in the wild for a quarter-century and has come upon fewer than a couple of dozen wolves that he didn't first see from an airplane or track down with the aid of radio equipment.

The point is: Wolves will be very difficult to count once their numbers increase. Also, no one knows how many will be able to live in a particular piece of country such as the North Fork or the Bob Marshall Wilderness.

Montana's experience with the grizzly bear has shown that the data requirements to implement federal management options are now so stringent as to be almost unattainable. To gather the demanded information requires an unwarranted (in the state's perspective) degree of handling animals better left alone.

Even worse, the recovery targets seem to be constantly moving as a result of litigation, new interpretations, and changing regulations and new information. It has become very difficult to downlist a species listed as "endangered" to threatened or to get it off the list altogether.

Again, the DFWP's perspective goes back to its experience with the grizzly. The grizzly bear recovery plan was approved in 1982. It states, "the [grizzly] population will be judged recovered [eligible for delisting] when it is determined to be viable at a population size of 440-680 bears or above...." Current estimates indicate there are now between 549 and 813 grizzlies in Montana's northern Continental Divide population.

In the recovery plan, the mean figure of 560 was used to establish a goal. The current mean figure is 681. The population parameters being monitored meet or exceed those

necessary for delisting. Based on the regulatory mechanism in place and the best biological information now available, the continental grizzly population should be delisted. But it hasn't been and probably will not be in the immediate future. Precedents established in downlisting the American alligator to threatened status in Texas, Louisiana, and Florida and current regulations cloud the issue.

Minnesota's wolves will not be delisted until independent populations have been established in Michigan and Wisconsin. The same would be true with wolves in Montana. They could not hope to be delisted in the state until populations developed in Idaho or Wyoming. From Montana's and Minnesota's perspective, it doesn't seem right that state management programs be compromised by situations out of their jurisdiction and control.

In refusing to sign the revised recovery plan, Montana has asked for fixed, specific, easily measurable recovery goals that can be reached by actions of the state of Montana.

COSTS

A wolf recovery program could cost more than $200,000 a year for prey and wolf monitoring, wolf control, compensation, law enforcement, laboratory work, information materials and services, and federal coordination.

The grizzly bear right now costs the sportsmen of Montana about a quarter of a million dollars a year, and they simply cannot afford another program like it.

In general, Montana's wildlife programs are funded from two sources: hunting and fishing license revenue, and the state's portion of the federal excise taxes paid on hunting and fishing equipment. The excise tax is granted to the states by a formula that takes into account the number of hunting and fishing license buyers and the size of the state.

The federal government has a program of state grants to help support threatened and endangered species programs. These appropriations have not been dependable. Various fiscal pressures and austerity programs indicate that a good portion of any wolf recovery program will likely be borne by the state of Montana and by sportsmen.

CONCLUSION

Since World War II, agriculture has expanded and become the No. 1 industry in Montana. More efficient methods of predator control have been developed, including new poisons and aerial hunting. Fox and coyote numbers have increased and filled part of the niche formerly taken by the wolf. Big game populations have increased dramatically. Outdoor recreation has become the No. 4 industry in our state (wood products and mining are Nos. 2 and 3) and the only one of Montana's top four to show an increase this decade.

Montana now has some of the best big game hunting in the United States. It has become a very popular activity, worth more than $200 million a year to the state's economy. At least one of every four adults in Montana buys a big game hunting license, and the revenue and food generated by the activity affect a tremendous number of households in the state.

The resident wildlife of Montana belongs to the residents of the state in their sovereign capacity—i.e., as a group. The DFWP is merely the appointed trustee. The agency does not own the resource, but simply manages it subject to the will of the people as expressed through their political representatives—the Montana Legislature and the Montana Fish and Game Commission.

In Minnesota, about 200 wolves per year are now killed illegally. The 1986 Audubon Wildlife Report states that, in Minnesota, wolves older than 6 months die almost as often from human-related causes as from natural deaths. We don't want this in Montana.

In the past decade, the state of Alaska has spent about $1 million killing wolves in an attempt to increase depressed moose populations. The cost has exceeded, according to the 1985 Anchorage Daily News, $1000 per wolf removed. We don't want that either.

The Montana Legislature in 1973 and '75 committed its wildlife agency to protecting and enhancing endangered species. The Fish and Game Commission and the DFWP, in turn, are willing to prove that it's possible for a state to bring back a healthy wolf population by managing the species with its big game resources.

We don't want the majority of the limited funds available for a wolf management program spent on expensive conferences and coordination meetings. We don't want to buy into a federal program without secure funding, assured recovery goals, and the ability to use all of the available wildlife management tools. Wolf conservation in Montana is at a crossroads. We can become mired in the politics, bureaucracy, and rhetoric, or we can move ahead and build a simple, workable, locally supported program for the wolf. ■

MORE ON WOLVES...

A lot of misinformation is passed around about wolves. Two objective and reasonably priced sources of accurate information are:

"Wolves and Humans: Coexistence, Competition and Conflict," prepared by Karlyn Atkinson-Berg, 158 pages, 1983 (designed for teachers). Available from: Education Department, the Science Museum of Minnesota, 30 East 10th St.; St. Paul, MN 55101, $7 (includes postage).

"Wolf Recovery in the Northern Rocky Mountains," by Whitney Tilt, Ruth Norris, and Amos Eno, 31 pages, 1987. Available from: Wolf Book, National Audubon Society, 801 Pennsylvania Ave. SE, Suite 301; Washington, D.C. 20003, $4 (includes postage).

Both publications contain excellent bibliographies, each listing over 60 references on the subject of wolves.

Check your local library for the following sources:

"Wolves of Minong: Their Vital Role in a Wild Community," by D.L. Allen, 1979.

"Wolves of the World: Perspectives of Behavior, Ecology and Conservation," by F.H. Harrington, 1982.

"Of Wolves and Men," by B.H. Lopez, 1978.

"The Wolf: The Ecology and Behavior of an Endangered Species," by L.D. Mech, 1970.

"The Wolves of Mt. McKinley," by A. Murie, 1944.

READERS RESPOND

Two Ways With Jerky

I recently came across a *Montana Outdoors* magazine from Nov./Dec. of 1971. In this issue, there was an article about making jerky. I was wondering if you could possibly run it again, or provide an updated version.—*Deon Tomsheck; Shelby, Mont.*

* * * * *

• *We receive frequent requests about how to make jerky, especially at this time of year. Here are a couple of the most popular recipes from the 1971 article:*

Oven-Dried Beef Jerky

Trim all fat off 2 or 3 pounds of lean tip sirloin. Chill meat just about to freezing. Cut into long, thin slices across the grain. Lay the strips flat on foil and sprinkle the following ingredients to taste:

salt
Lawry's Seasoned Salt
sugar
garlic powder

You might try using different amounts on different slices of meat to see what tastes best to you. It's better to have the seasoning too light than too heavy.

Rub both sides of meat with Wright's Liquid Smoke. Place meat in a bowl, sprinkle a little more liquid smoke over it, cover, and refrigerate. Leave overnight to marinate.

Line the bottom of the oven with foil to catch drips. Place meat strips on oven rack to dry. It works best in a gas oven using only the pilot light. In an electric oven, turn on the lowest possible temperature. Leave the meat to dry until crisp clear through—keep sampling it periodically until it's right. This can take 1 to 3 days, depending on the thickness of the meat and the dryness desired. The meat must be very dry and have all fat trimmed off if it is to be preserved a long time without refrigeration. If it's a little moister, it must be refrigerated.

Salted Smoke-Cured Jerky

Any type of wild game can be jerked. Remove all fat and connective tissue possible from meat. Slice into strips approximately 1/8 to 3/16 inch thick, 1 inch wide, and 6 inches long. If the meat is tender, slice with the grain. If it is tough, slice across grain.

Combine:
2 pounds fine salt
7 oz. Lawry's Seasoned Salt
1 oz. garlic salt
1 oz. white pepper

Use Lawry's salt container as a shaker to put jerky salt on the meat.

Sprinkle jerky salt on one side of each piece. Put a little more salt on the meat than you normally would, but don't oversalt. Place the strips of meat in a crock, enameled pail, or plastic bucket with the salted side up and let stand for 12 to 24 hours. Do not rinse meat.

Place meat trays in a smokehouse at 150 to 180 degrees with a non-resinous wood (chokecherry, apple, or any fruit wood) for approximately 8 hours or until meat reaches desired smoked taste and dryness.

Most people like their jerky with a little moisture—in this case, it should be removed from the smoker before entirely dry. This moister jerky must be stored in a freezer or it will mold. Jerky can be dried until it is hard. This can be stored without refrigeration.—Ed.

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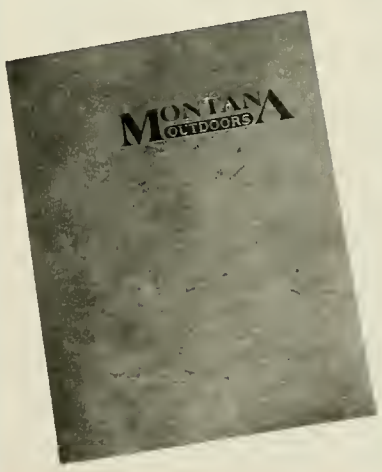


Fences, Hummingbirds

I'm writing in regard to the article, "Fences and Hummingbirds," in the July/August 1987 "Nongame News" section.

A few years ago, a friend from Missouri sent me a newspaper clipping about the red insulators and the electrocution of thousands of hummers. When I received this clipping and noticed a few fences in the Flathead Valley with the same insulators, I attended the local Audubon Society meeting and alerted them to the situation.

In the meantime, the company, located somewhere in Minnesota, was alerted to the situation. Now I believe they are making the insulators in dark colors. Some of the red ones are still on the shelves of farm supply stores and the only thing to do is, as your article urges, "spray them black."—*Elenor Small; Kalispell, Mont.*

Magnificent Pictures

I just finished reading my Jan./Feb. 1987 issue of *Montana Outdoors* and it is superb. The pictures are magnificent and the captions very persuasive. Congratulations!

As a photographer, the only improvement for me would be to include what lenses and setting were used for each picture.—*John Lundberg; Mendham, N.J.*

Realistic Photography

I received my May/June issue, the first of my subscription, but I'm especially interested in the Jan./Feb. Special Photo Issue because of the pictures it contains. I saw the issue when visiting a friend who subscribes.

I am a carver of wooden birds and am always on the lookout for sources of good photo references to aid me in producing more realistic carvings. So, I'm looking forward to your magazine.—*Walt Mifflin; Glen Ellyn, Ill.*

Caping in the Field

by Gerry Schroeder

September, cool and crisp. The bull you've been challenging for the past 20 minutes is coming in to your bugle. At 60 yards, he stops...ooooueeeeee-ahhhh! So does your heart. But somehow you manage to answer him with your grunt tube. As the bull continues to come through the trees, you glimpse his ivory-tipped tines. This bull is looking for a fight; at 30 yards, he stops behind a small stand of aspen and thrashes his massive rack through the branches. Your nerves are as tight as your bowstring, but you keep telling yourself, "Not yet, not yet, wait for a clear shot." The bull steps forward and your arrow flies true. It's a solid hit.

Bagging a trophy elk that you want to have mounted is one of the most exciting hunting experiences you could ever have. What guarantees the success of that mount, however, is not necessarily exciting. It is—plain and simple—a lot of hard work. Add to that scene a 900-pound elk on the ground, and the fact you are two miles from your vehicle. Furthermore, the predicted high temperatures for the next several days will be in the 60s. Unless you do "all the right stuff," the thrill of a lifetime could turn into a fiasco.

Proper field care of any trophy animal under these conditions is critical. The warm daytime temperatures and the body heat from the animal can ruin both the meat and cape in short order. Consequently, you are faced with three problems: (1) you need to adequately care for the meat; (2) you must prevent hair slippage to the cape; (3) you must transport the meat, cape, and antlers to your vehicle. This article will discuss how to completely remove a cape from the shoulders, neck, and head of a trophy animal. By performing this relatively easy task, you aid in cooling the carcass, take the first step in preventing hair slippage to the cape, and make your packing-out chores easier. The skull and upper neck of an elk can weigh 20 or more pounds. Needless to say, with the cape completely removed from the animal, you don't have to pack out this extra weight.

When caping an animal for a shoulder mount, you need to make four primary cuts. Fig. 1 shows the locations of these incisions.

CUT 1—This incision is made to sever the lips and nose from the skull. When cutting the lips from the gums, make sure you leave at least 3/4 of an inch of inner lip skin attached to the cape. Begin by lifting up the nose and lip. Sever the upper lip at the front of the palate along the gum line (see Fig. 2); then continue cutting the gum lines along both sides of the upper jaw until the upper lips have been cut loose from the skull (see Fig. 3). Repeat the same process for the lower lips (see Figs. 4 and 5). When both the upper and lower lips have been detached, concentrate on cutting the nose free from the skull. Once again, lift up the nose and upper lip and carefully cut free the bottom of the nose cartilage which is attached to the skull (see Figs. 6 and 7).

CUT 2—Make a circular cut completely around the animal's body. To make sure you leave enough cape for the taxidermist, start this incision six inches *behind* the animal's front leg. The most common mistake made when caping a trophy is to start this circular cut in front of the animal's leg.

CUT 3—Next, dejoint the front legs at the knee. Make Cut 3 from the back of the dejointed knee, up the back of the leg to the leg pit (think of it as the animal's armpit); then make a cut straight back to circular Cut 2. Repeat Cut 3 for the other leg.

CUT 4—This incision is made up the back of the shoulder and neck to the top of the cranium. When you reach the top of the head, stop. Now make a V-cut to the antlers. Make two incisions in the V-cut, each one going to the back of the antler burr.

After making the four primary cuts, it becomes a matter of skinning the cape from the animal. Starting at the top of the withers, skin the cape forward from the shoulders, foreleg, brisket, and neck. As you are skinning, pull the cape away from the body and cut toward the meat, not toward the hide. Cutting toward the hide makes unnecessary lacerations in the skin. When you reach the head, four areas require particular concentration, so each will be discussed separately:

EAR BUTTS—The ear butts include muscle, cartilage, and the ear canal. The muscles in this bulbous structure enable the ears to move. You must detach the ear and its butt from the side of the head. To do this, pull and skin the hide from the top

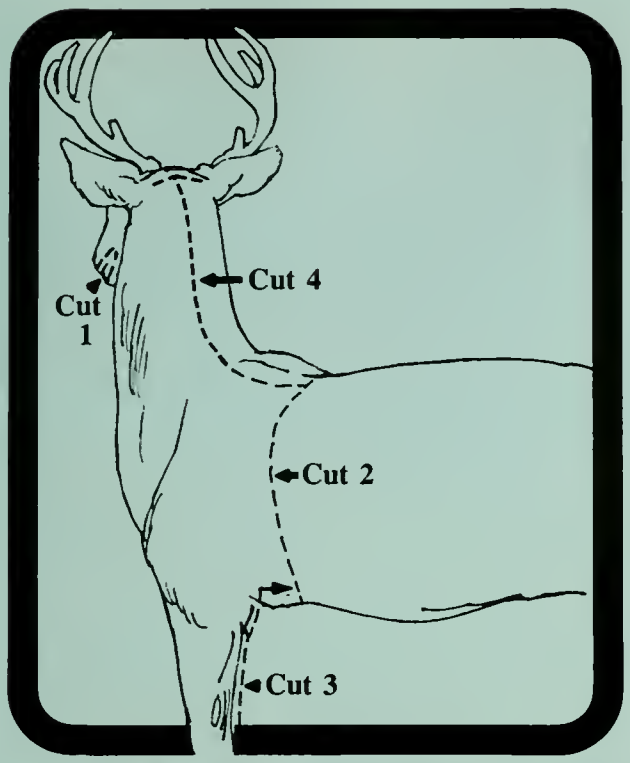


Fig. 1—You need to make four primary cuts when caping an animal for a shoulder mount.

Fig. 2—Sever the upper lip at the front of the palate along the gum line.

Fig. 3—Continue cutting the gum lines along both sides of the upper jaw until the upper lips have been cut loose from the skull.

Fig. 4—When you reach the lower lip, pull the lip down and sever the skin along the gum line.

Fig. 5—Continue cutting the gum lines, again leaving plenty of lip skin, until the lower lips have been completely severed.

Fig. 6—When the lips are completely severed, cut the nose loose from the skull.

Photos for Figs. 2-9 © 1986. Breakthrough Publishing Company, Monroe, Georgia, reprinted with permission.

of the head toward the ear butt. When you have gone far enough, you will be able to see the muscles which attach the top of the ear butt to the head. With your knife, cut directly into the top of the butt as close to the side of the skull as possible. Cut through the butt until you reach the ear canal (a hollow cartilaginous tube). Proceed more slowly until you have completely cut through the ear butt. When you reach the skin at the bottom of the butt, stop. Now concentrate on skinning the hide from the antler bases.

ANTLER BASES—You must remove the skin around the antler bases (pedicels) to ensure a proper fit when the animal is being mounted. You can accomplish this job more easily by prying the hide loose from the pedicel with a flat-head screwdriver; however, you can obtain the same result by carefully cutting the hide free with your knife. Make sure to completely skin around the entire base. Skin all of the pedicel hide—do not leave any attached to the top of the base directly underneath the antler burr.

EYES—After you have detached the ear butts and skinned the pedicels, continue the caping process toward the eyes. Before you get to the bony eye socket, insert the index finger of your free hand into the eye opening (see Fig. 8). This will help you locate the exact corner of the eye. You must cut the inner eyelid skin free from the eye socket. When making this cut, first pull the cape forward and away from the head; then cut toward the bony eye socket. This will keep you from accidentally cutting the eyelids. Leaving plenty of inner eyelid skin and membrane is perfectly okay at this juncture.

TEAR DUCTS—Not all big game animals have tear ducts (preorbital glands); for example, antelope and goats do not. For animals that do, the gland is directly in front of the eye. It is fairly deep inside the skull, and you should skin out the entire gland. After detaching the eyelid skin from the front of the eye socket, use your knife to cut deeply into the duct cavity (see Fig. 9). Following the bony contour of this cavity, skin the gland free from the skull. The difficult part is over—skin out the rest of the face by pulling the entire cape toward the mouth and cutting it free from the skull.

After removing the cape, hang it in the shade to cool while you saw the antler plate from the skull. Using a saw or hatchet, detach the antlers along the dotted line as illustrated in Fig. 10. When removing the antlers, it is important that you also saw off the top portion of the eye socket. The top of the eye socket on the antler plate will aid the taxidermist in properly aligning the antlers on the form when he mounts your trophy.

In addition to the advantages mentioned earlier, your ability to cape an animal in the field provides the confidence to hunt in roadless backcountry. If you get an elk two miles from your rig, you know how to properly care for the cape—the first step toward a quality mount.

You may be hesitant about caping your next trophy; if so, practice first on a meat buck. The technique is not as difficult as it might seem. For further material on the subject, consult your local video store for tapes on caping trophy animals in the field. ■

Fig. 7—Pull the nose away from the skull while cutting the cartilage loose.

Fig. 8—While skinning the eyes, place your finger in the eye socket because it helps to locate the exact corner of the eye.

Fig. 9—As you proceed toward the front corner of the eye, you must cut the tear duct loose. This gland is located deep within the skull, just forward and below the eye.

Fig. 10—Using a saw or hatchet, detach the antlers along the dotted line. Make sure to saw off the top portion of the eye socket because it will aid the taxidermist in aligning the antlers on the form.

NEAL & MARY JANE MISHLER

Bighorns on the Rise

by Tom Palmer

Time nearly marched—make that trampled—over the Rocky Mountain bighorn sheep. An esteemed relic of the ice age, three decades into the 20th century the species was just about history. Iced in North America. A casualty of progress.

As time charges on, four leap years to go until 2000, there are areas in the West where bighorn sheep have been safely tucked away from the sweep of time. Bighorn sheep have come to like it vertical, rocky, and remote, as far away in distance and elevation from satellite dishes and exhaust fumes as the mountain peaks will allow. They have come to love it in Montana.

Bighorn sheep haven't merely rebounded in Montana, they have reclaimed it. Nowhere on the continent are there healthier herds or bigger bighorns. The secret is out.

Over the past decade, the Boone and Crockett Club, the chronicler of North American big game hunting trophies, has posted more record-book rams from Montana than from any other state or Canadian province.

From 1980 through 1982, 36 rams qualified for the Boone and Crockett record book—the top two trophies and 14 others came from Montana. From 1983 through 1985, 56 rams qualified for the record book—four of the top five and 17 others were Montana rams.

Trophy scores are calculated by a series of horn measurements. The circumference of the horn is measured in two places, as is the spread of the curl, and the length of the horn is measured from the base to the tip. A minimum score for record book consideration is 180. The world record ram, shot in

Nowhere on the continent are there healthier herds or bigger bighorns. The secret is out.

In the 1930s, bighorn sheep populations in Montana were at dangerously low ebb. But thanks to wildlife restoration funds, research, and a vigorous transplanting program, Montana has become a premier bighorn state. From 1980 through 1986, 37 Montana rams qualified for the Boone and Crockett record book.

BILL THOMAS

NEAL & MARY JANE MISHLER

HARRY ENGELS

Alberta in 1911, scored 208-1/8.

Montana's largest ram, taken in 1984 by Larry D. Smith, scored 199. It was the largest bighorn ram known to have been taken in Montana by a hunter in 60 years. A ram scoring 200 or more hasn't been taken by a hunter since 1924, when Martin Bovey bagged his 207-2/8 ram in Alberta.

If the renewed interest in Montana bighorn sheep is to be considered a trustworthy indicator, that is about to change.

Earlier this year, in the shadow of the Grand Old Opry in Nashville, Tenn., a chance to hunt a bighorn sheep in Montana was auctioned for far more than a song. The bidding ended on a Rocky Mountain high note: $109,000. Last year—the first time Montana offered for auction the opportunity to hunt a bighorn ram anywhere in the state for

the duration of the regular hunting season—the highest bidder wrote a check to the tune of $79,000.

For two years running, the auction, conducted at the annual convention of the Foundation for North American Wild Sheep, was won by the same sportsman. The big money interest has been attributed to the growing notion that there lives in Montana more than one bighorn sheep that will butt the Boone and Crockett Club's 200-point threshold. "I think that is why the interest in our bighorn sheep program has mushroomed," said Department of Fish, Wildlife and Parks (DFWP) Wildlife Division Management Bureau Chief Glenn Erickson. "The Foundation for North American Wild Sheep has a worldwide membership and they know sheep. Right now a lot of their interest is focused on Montana."

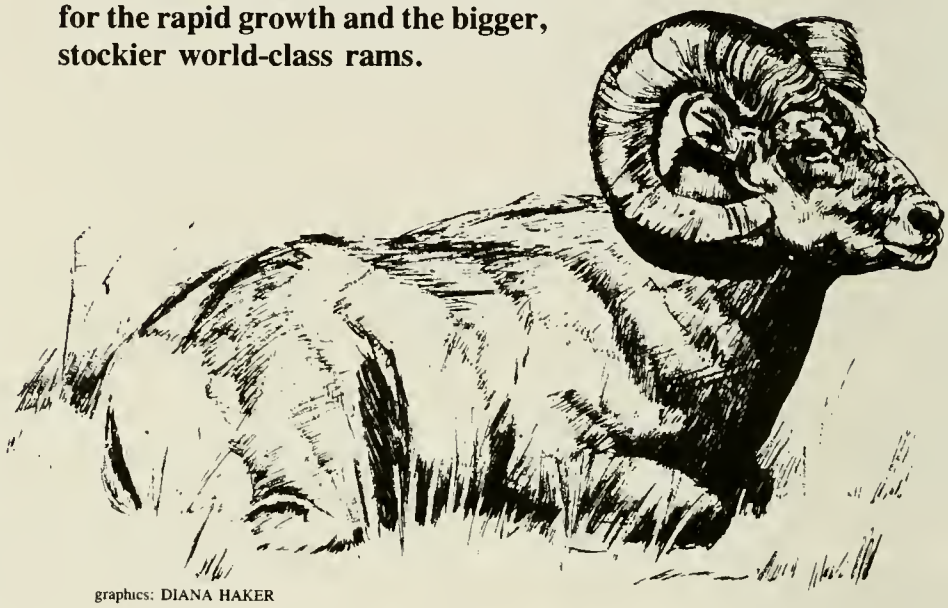
More than anything, the renewed interest in Montana bighorn sheep is a tribute to Montana's wildlife management program. "In the past, our bighorn sheep never received much publicity, but now public interest is very high," Erickson said. "The auction has been a good way to promote bighorn sheep in Montana and the hoopla that goes along with it has created wide interest in our program."

All things considered, the attention and notoriety of Montana's bighorn sheep was a long time coming. In the 1930s, the bighorn sheep was considered by some to be an endangered species and only a few remnant bands of sheep were known to be in Montana.

With the arrival of Pittman-Robertson wildlife restoration funds in 1941, the Montana Fish and Game Department began a bighorn sheep research and management program with the objective of increasing populations. Early studies indicated that critical wintering areas for bighorn sheep are typically at lower mountain elevations with lower snow depths that still provide rugged escape routes. The studies also showed that in summer, sheep tend to migrate to higher elevations and favor steep, rocky areas interspersed with open slopes.

Using that profile, one would suspect that bighorn sheep could colonize all of Montana's mountainous regions, but that hasn't been the case. Although Montana's bighorn sheep transplanting programs have focused on those types of habitats, some of the transplants haven't prospered. "We've had a 60% to 70% rate of success with our transplanting program," Erickson said.

The largest rams in Montana are coming from transplanted herds, where biologists suspect the lack of competition has accounted for the rapid growth and the bigger, stockier world-class rams.



graphics: DIANA HAKER

The difficulty is—and it is somewhat of an irony considering the bighorn sheep's powerful build and rugged character—the bighorn is a very vulnerable species. The sheep do not compete well with other animals. In competition with elk on the winter range, the elk will usually emerge victorious to the detriment of the sheep. Competition with domestic livestock can also be detrimental to bighorn sheep.

In severe winter weather, stressed bighorn sheep can be forced off their home range with equally problematic effects that can often lead to the onset of disease. A strain of viral pneumonia, for instance, swept through Montana's historic Sun River bighorn sheep herd in the winter of 1983-84 killing about 10% to 20% of the herd's 1,000 sheep. Had the herd not been healthy, it could have been much worse. "Disease can wipe out a herd pretty fast, when it's also under stress," Erickson said, "but if a herd is healthy, it can fight it off. We only lost about 20% of the Sun River herd, but up in Alberta, Canada, where the die-off started, they lost 70% to 80% of the sheep. On the Sun River, after two or three seasons, we're right back where we wanted to be and it's all related to the good health and condition the animals were in when disease struck."

In Montana, bighorn sheep inhabit only 3% of the state, but nearly all of the herds occur on public land where, in a variety of habitats, palatable browse plants, forbs, and grasses can be used for food all year. The transplants that have taken a stronghold in such areas are producing, and have produced, rams of extraordinary size and health.

The largest rams in Montana are coming from transplanted herds—Rock Creek, Thompson Falls, Petty Creek, Anaconda, to name a few—where biologists suspect the lack of competition has accounted for the rapid growth and the

bigger, stockier world-class rams. "We feel you get larger sheep from transplanting populations to new areas, or at least to areas that have historically supported sheep populations," Erickson explained. "As those sites slowly fill up with more sheep, they tend to grow real fast.

"It's like taking a kid out of his house and putting him in a good restaurant and leaving him there," Erickson joked. "He's got nothing to do but eat and he's going to grow. These transplanted sheep put on that kind of rapid growth and that's producing the large heads."

The scientific theory postulates that during colonization of new habitat, the sheep enjoy a superabundance of high-quality forage that results in a super high-quality herd. The herd is typically characterized by high reproduction rates and large, robust, early maturing sheep whose growth rate is on a beeline with its genetic potential.

Erickson said proof of the theory can be observed in many of Montana's recently transplanted sheep herds. Accordingly, state wildlife managers say the big picture of bighorn sheep management in Montana has less to do with producing the all-time largest record book ram than with trying to provide a resource of trophy-sized sheep for as many hunters as possible.

By 1990, the DFWP's sheep management objective is to harvest 369 sheep annually, while providing 7,600 hunting days to 1,200 hunters. Compared with just three years ago, that translates into a 31% increase in overall harvest, a 100% increase in hunters, and a 150% increase in sheep hunting recreation. Those substantial increases are higher, by far, than for any other big game management objective in Montana. Still, only 5% of the approximately 8,600 hunters who will apply for a special or "limited" sheep permit in 1990 will actually get the opportunity to hunt one.

Montana, however, with seven rugged hunting districts on the western and northern periphery of Yellowstone National Park, remains the only state in the nation where one can hunt bighorn sheep without first drawing a special permit. The catch is, hunting sheep in the harsh and rugged Spanish Peaks, Madison Range, Gallatin Range, Absaroka Range, and the Beartooth Mountains is no walk in the park. Less than 5% of the hundreds of sportsmen who have hunted bighorn sheep in that difficult country have packed out a trophy.

The present improved distribution of bighorn sheep in Montana—from the Purcell Mountains in the far northwestern corner of the state to eastern Montana's Missouri and Yellowstone river breaks—is a result of aggressive wildlife management, ongoing transplanting efforts, and more favorable range conditions. Eleven native herds of bighorn sheep now live in Montana. The remaining 23 herds have been stocked by transplanting.

With the help of funds acquired through the Montana Bighorn Sheep Auction, the DFWP has already embarked on a $10,700 transplanting program that has introduced bighorn sheep to three new areas. In addition, $7,500 has been allocated for three sheep winter range improvements and $3,500 has been earmarked to help re-establish native vegetation on a sheep range under the Conservation Reserve Program in eastern Montana.

Arnold Olsen, administrator of the department's Wildlife Division, said the DFWP has also obligated $50,000 per year toward acquisition of new land, or permanent easement of key winter range lands.

To date, $45,700 remains in the DFWP sheep auction account. As directed by the 1985 Montana Legislature, which authorized the auction of one bighorn sheep license each year, the money will be put to use in the department's continuing plans to supplement transplanted herds or for easement, acquisition, and cooperative habitat improvement projects that will benefit bighorn sheep.

Although the Foundation for North American Sheep has received 10% of bighorn sheep auction price, some of that money has returned to Montana in the form of a grant. The foundation recently awarded the DFWP a $9,000 grant and is assisting the department in a project to re-establish bighorn sheep in the Taylor-Hilgard Mountains of the Gallatin Range.

If it seems that interest in bighorn sheep conservation is infinite, the range of potential transplant sites, even in spacious Montana, unfortunately is not. "There are only so many places where you can put the sheep and only so many places where they can survive," Erickson said.

The popular phrase in wildlife management circles is "the limiting factor." To the legendary football coach Vince Lombardi, the limiting factor of a potential championship season was the health of his athletes, and particularly the status of his athletes' knees. "The knees," he would grumble when told of an injury. "It's always the knees." The "knees" of wildlife are vanishing habitats and a stable habitat is most critical to the health of Montana's bighorn sheep.

As the suitable bighorn habitat is filled, the future of bighorn sheep management in Montana will feature less emphasis on transplanting populations and more on controlling habitat. "Managing bighorn sheep is somewhat easier than managing other big game species," Erickson said. "You learn their age by counting horn rings, and they live in open areas so it's easy to determine the mortality rate and the age structure of the herd. But the most difficult thing to deal with is trying to maintain the type of habitat sheep exist in."

The historic range of bighorn sheep is associated with the retreating glaciers. The vegetation associated with the glaciers' retreat—the grasses and forbs sheep prefer—was the first succession of what eventually became a forest. When the grass was succeeded by shrubs and trees, the sheep moved on to colonize a new area. Today, if a sheep winter range is permitted to evolve in a natural succession, there is no place for the sheep to go.

"What we have to do is prevent natural succession of the habitat from occurring," Erickson said. "We have to alter the habitat to earlier forms of succession by burning. We've done that in several areas and we'll do more of it in the future. That kind of habitat management is going to be the key to the future of bighorn sheep in Montana."■

Of Nature and a River

by Greg Noose

The Stillwater River had aged overnight. For months I had paddled its course under warm winds and summer skies and suddenly, one cool morning in September, I returned to find the change. Wild waves and surging currents had finally faded. Familiar channels had diminished and yielded to rocky shoals of gravel and sand. The green lushness and vigor of youth had thinned to reveal another world of icy blue waters and the ashen colors of fall.

There was a new kind of vitality here. As the roar dissolved into a ripple, a subtler consciousness appeared within the river. Channels that once ran strong, wide, and clear now twisted and braided like so many small streams dancing together in a moving maze of wandering water.

For the most part, the river had mellowed and the pace of the current was quiet and steady. Yet at times the channel could burst into life with unexpected energy and delightful speed. Graceful passage downstream meant careful attention to a demanding route.

All along the river bank, the scars from spring's high water were clear to see, covered only by the freshest growth of moss and young grass. Crumbling dirt shores, hollowed-out stones, and high, tangled piles of dry branches and logs attested to the force of those earlier flows. But those scars were not ugly. They were natural and beautiful and filled me with respect for the river's past power and experience. And they seemed to explain the nuances of the river's present path as the waterway dutifully followed a track formed so long ago.

There were fewer visitors now. The chilly bite in the water and in the wind had driven many paddlers away. The great blue herons were leaving too. Their usual haunts were mostly empty and the few birds that remained seemed restless and easily alarmed. Where once they stood easily fishing in the shallows, now they could be seen in flight high overhead, their prehistoric shape grayed and subdued against the blue sky.

There was a wistful feeling in the air, a pervading sense of permanent unavoidable change that came with the onset of winter. In June, a well-grown cottonwood tree had fallen into the river as the receding runoff undercut the bank. All summer long it partly blocked the channel, hazardous as it strained the current, yet intriguing as it hissed and shimmered in the flow. Nourished by the rushing water, the leaves stayed green all season. Now they were yellowed and dried and many limbs were already bare. The tree could never bloom again. The motion and sound would never be repeated. In a very small way, the face of the river would be changed forever.

Even so, brighter signs overshadowed the pensive mood of the moment. The eagles had returned. Two big balds soared patiently over the woodlands that border the confluence of the Stillwater and the Yellowstone.

I saw them last in March and all summer I wondered if they would return. I should have known they would. Their winter homecoming was just a part of a larger cycle going on around me. A cycle of nature. The cycle of the river.

The shining mountains of the Beartooth formed a rugged southern horizon. Already they were covered with a thick frosting of new snow. That glistening blanket of white promised a time to come when the dwindling waters of winter would give way to the first freshet of spring.

And a new river would be born.■

GREG NOOSE

Stillwater River

**"There was a wistful feeling
in the air, a pervading sense
of permanent, unavoidable change. . . .
The green lushness and vigor
of youth had thinned to reveal
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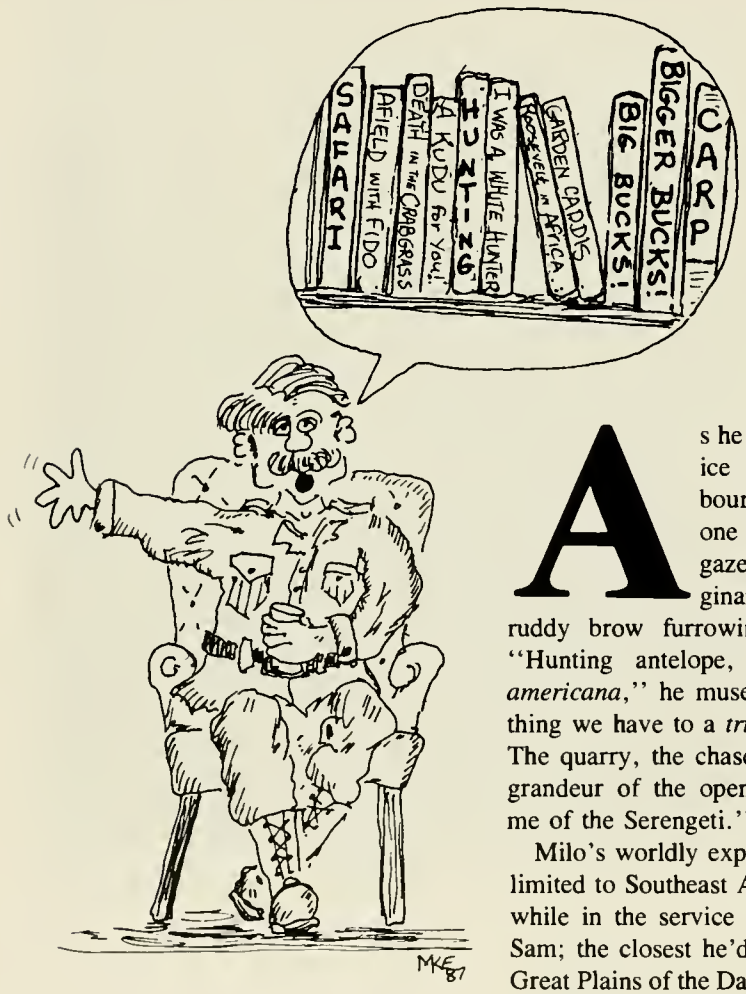
and the ashen colors of fall."**

On Safari For Prairie Goats

story and illustration by Michael Korn



As he slowly stirred the ice in his half-full bourbon glass with one finger, Milo gazed toward an imaginary horizon. His ruddy brow furrowing, he squinted: "Hunting antelope, the *Antilocapra americana*," he mused "is the closest thing we have to a *true* African safari. The quarry, the chase, the stealth, the grandeur of the open plains—reminds me of the Serengeti."

Milo's worldly experiences had been limited to Southeast Asia and Germany while in the service of his rich Uncle Sam; the closest he'd ever been to the Great Plains of the Dark Continent were a couple of primatology books by Jane Goodall and a yellowed article by Elmer Keith from a 1962 hunting magazine. Yet, in spite of that, there may be some truth in his words, for hunting antelope is indeed a cut above the average Montana hunting experience.

Every year, I, along with Milo and other hardy adventurers, pack the trucks and head to the plains south of Malta, near the Missouri Breaks, to hunt antelope. Sometimes we drag along a wall tent, firewood, a sheepherder's stove, and jugs of water, all in order to camp on the prairie and "...experience the full adventure of the Great Plains." For the past few years, however, we have opted to stay at a small hotel/hot springs only a short distance from our hunting grounds. It makes logistics simpler, and also makes for better sleeping conditions should it chance to rain. I was never really big on sleeping in gumbo.

The eastern Montana plains are a veritable zoological treasure. Although at brief glance it seems like not much more than "miles and miles of miles and miles," the area is teeming with an endless array of game and nongame fauna. Because antelope season comes so early in the hunting season, the weather is frequently crisp and balmy, Indian summer in full swing. Shirt sleeves are often the rule rather than the exception. For those of us who spend the darkening weeks of hunting season bundled up in wool and goose down, chasing wapiti up and down the near-vertical draws of western Montana, the coulees and cutbanks of the prairie are a lot easier on the legs.

Last year was the first year my wife, Jane, decided to hunt. In the past, she'd come along as a spectator, a chance to get outside before the full force of winter set in. The year before, she was with me as I scoped out a huge herd of antelope and then, fully stricken with buck fever, tried a shot at an animal out of the range of even my ol' trusty .257 Roberts. The first shot missed. The second, the third, the fourth, and finally the fifth were also zeroes, as the buck (along with the rest of his group) ran off. As I shot, my wife kept hollering, "Git 'im! Git 'im! Git 'im! " the volume of her encouragement increasing proportionally with every miss. The shots passed over and beyond the fleeing prairie goat, making little puffs of dust where they landed.

After the last shot, with the herd heading off to Canada or points beyond, my wife turned to me, punched me in

the shoulder, and said, "Where did YOU learn to shoot??!!" It was at that moment I thought perhaps she, although never before bearing arms against any creature on God's earth, indeed had caught the bug.

So this year, she carried a rifle. A little doubtful, perhaps. And nothing seemed right. The stock was too long, the scope too far forward, the rifle too heavy. I can't imagine why. I had carefully selected the gun for "her," as so many spouses do, just as I had "selected" a shotgun for "her," a roping saddle for "her," and, of course, the stock tank heater. In spite of all the shortcomings of "her" gun, she was willing to try.

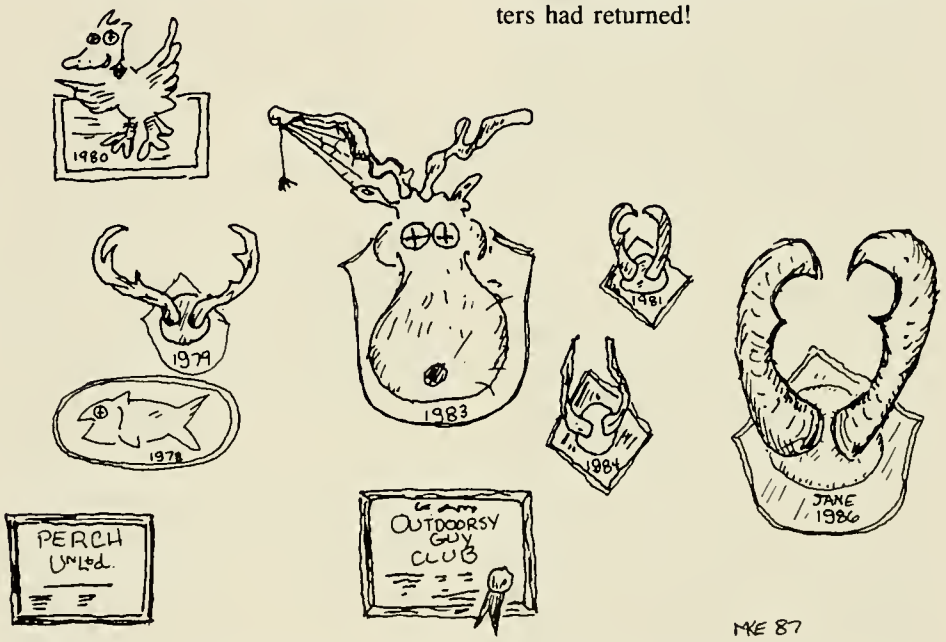
After seeing other couples afield, I sagely decided that one is often better off hunting with someone *other* than one's spouse. Particularly the first time. So, to belay the possibility of Jane feeling self-conscious, not to mention maintenance of a good DTI (Domestic Tranquillity Index), I prevailed upon my good friend and Great White Hunter Milo to guide Jane through the coulees and breaks in quest of wily antelope. Milo agreed to this task in a most gentlemanly fashion.

Milo was born 100 years too late. In the wee hours of the morning, after too much bourbon and serious talk, he fancies himself in Her Majesty's Service, wearing khaki shorts, knee socks, a shirt with epaulets, a pith helmet, carrying a Martini rifle. To the lilting meter of "They're Hanging Danny Dever in the Morning," Milo would march forth, keeping the colonies safe for Queen, country, and Tanqueray. He is the only man I know who yearns for the days of the Zulu Wars and perks up when he hears the word "sahib."

Milo and Jane set out to the ash-blue Charlie Russell east—Milo hoofing it to an imaginary leftenant's cadence, and Jane stopping every few steps to pull her rifle back on her shoulder and then running to catch up, only to have the rifle slip off her shoulder again. I headed off to the west, toward a likely looking coulee which moments before had held a small group of elusive prairie goats. *I* was huntin' HORN! BIG BUCKS only! No doe this year! Selective hunting! The rack goes on the wall! Look out, Boone and Crockett! As my mind began to fill with visions of the consummate photo of yours truly holding up the head of my trophy beast, I paused to look toward my wife and her faithful guide. Milo was moving along at hayfoot-strawfoot, and Jane was stopped and staring at the rifle sling on her firearm, as if asking herself, "How the devil does this thing work?"

It was a gorgeous day. The temperature was in the mid-50s and a light breeze wafted sage. Not a cloud in the sky, not a worry...and not a goat. I don't know how they do it, but antelope appear at one moment and then vanish into thin air like white-and-tan specters of the plains. You see them, drop to your knees (usually on a patch of prickly pear), and slither along on your belly, grimacing from needles poking you, all the while hoping that your moans and curses aren't scaring the critters away. You waddle behind the only sagebrush for miles and look up, ever...so...slowly, to see the entire herd bounding off at full gallop over the ridge—and then you hear gunfire and calls of "I got 'im! He's HUGE!" from the next draw over.

At noon, having spent the morning in fruitless pursuit of prairie goats, trophy or otherwise, I headed back to the truck to have lunch. Following my repast, I fell asleep in the cab. I awoke about an hour later. As my eyes focused, I made out two figures walking across the creek bottom. I got out the spotting scope and squinted down on the spots. As they got closer, I recognized them. One was marching, bent slightly forward and moving in almost metronome time, like one of the policemen in "Pirates of Penzance" ("tra-**dum**, tra-**dum**, tra-**dum**, tra-**dum**"). The other form trudged along, stopping every few steps to pull a slipping rifle back onto a noticeably sagging shoulder. The hunters had returned!



They approached the truck, and I bailed out to greet them.

"Well?" says I.

"Well, what?" Milo glanced up.

"Did you get anything?"

"Ask your dearly beloved," Milo indicated with a motion of his head.

"WELL?" I asked again.

Jane was fumbling with her rifle and trying to get it off her shoulder without yanking off her day pack which had become entangled in the sling.

"I got one. A buck," Jane says, her irritation with the sling audible in her tone.

I turned to Milo, with a look that bespoke incredulity.

"That's right," Milo responded to my unasked questions. "One shot. A classic shot. How about you?"

"Oh, er...saw a lot, but couldn't get off a shot and...er...*one shot*?"

"That's right," Jane says, almost with a tone of boredom, like, "Okay. Now that that's done, what do we do next? Took him with one shot. Isn't that what *you're* always talking about? The single, well-placed, humane shot?"

"Well, yeah, sure," I said, with a definite air of sheepishness and surprise at hearing my own words come back to haunt me. "It's getting late. Let's... ah...go get your goat." Jane agreed, and we both climbed into the truck and set off to retrieve the antelope.

We drove up, down, around and around, trying to get to the spot where the antelope fell. Finally, we cleared a rise and there, with orange ribbon flapping in the wind, was the buck. A BIG BUCK. Fully dressed and skinned.

Shifting into my "technical" appraisal voice, I turned to Jane. "Where'd you shoot him from?"

"Over there, by those rocks." A hundred yards away were some boulders from whence the fatal blow was struck. "Not bad, huh?" Jane half-asked and half-stated. "Milo and I saw a herd about half a mile away, so we sat down by these rocks to wait 'em out. We were both tired, so we took a little nap. When I woke up, the herd had grazed over here, so I quickly woke up Milo and then picked up the rifle, put it to my shoulder, and squeezed off a shot. The buck went down and when we got over to it, Milo—gentleman that he is—offered to dress it out. I accepted. Let's get the darn thing loaded."

Her nonchalance in recounting the details led me to believe that after firing the shot, Jane probably brought the muzzle of the rifle up and then blew smoke from the barrel like Matt Dillon or Wyatt Earp.

Later that day, our expedition headed back to the motel. The bounty from a day of pursuing *Antilocapra americana* hung from a fence near our rooms to cool off. There were three antelope, one of which was Jane's big buck. However, one was a good deal smaller than the rest. It belonged to another member of our party, Young Kirby. Poor Kirb was feeling bad enough without having to endure the derision other members of the expedition dished out. "If you

wanted veal, why didn't you go to the market?" or "Don't plan on bein' very hungry this winter, eh, Kirb?" or the penultimate insult, "Hey! Somebody shot a dog! Looks like a poodle!" When you're right, nobody remembers. When you're wrong...poor Kirby. I, on the other hand, didn't have to endure such remarks. I went home with an unfilled tag. Of course, I was huntin' horn! BIG BUCKS! No doe this year....

My wife, bless her, never made much fuss over her success (or, for that matter my lack of it). At least not the way I tend to do when I score (as Bwana Milo would say) "a mature specimen of the species." Jane just wore a knowing and contented smile all the way home from Malta. A few days after our return, I ran into one of her colleagues from work while walking down the street. He was beside himself with disbelief.

"Did Jane *really* shoot an antelope at Malta?"

"Yup," I replied.

"Is it true she dropped it at 100 yards with just *one* shot?"

"Yup."

"And is it true it's actually a 15-incher?"

"Yup. Dressed out to 65 pounds."

"Man, I didn't believe it when she told me. She's a heck of a hunter!"

"Yup."

A few days after my meeting with Jane's disbelieving co-worker, Milo came over for supper. We talked about the next hunting excursion. Conversation drifted from guns to quarry to methods—all the topics that are spoken of when hunting people get together over a meal and a few drinks. All at once, a silence fell over the group and Milo gazed toward an imaginary horizon. His brow furrowed, his eyes squinted: "Hunting antelope, the *Antilocapra americana*, is the closest thing we have to a *true* African safari...." I chanced a glance at Jane, and she was looking off into the horizon, too.■

NONGAME NEWS

WHAT'S IN A NAME?

Western grebe, Clark's grebe; yellow-bellied sapsucker, red-naped sapsucker. In past issues of *Montana Outdoors*, you may have read about these name changes as certain bird races acquired full species status. Then in the March/April 1987 issue, Ken Walcheck wrote an article which highlighted the unique bird names that Lewis and Clark bestowed on some of Montana's native species. In what other ways have birds acquired their common, scientific, and colloquial names?

North American birds are one of the few taxonomic groups with officially designated common names. The American Ornithologists' Union (AOU) periodically reviews the scientific data and publishes amendments to its "Checklist of North American Birds" (6th edition, 1983), which includes both common and scientific names.

The origins of many bird names are obvious: They are based on plumage characteristics, such as the redhead, canvasback, pintail, and yellowthroat. Others get their names from the sounds they make: killdeer, chickadee, phoebe, pewee, willet. Behavior can determine a bird's name in some cases: dipper, warbler, woodpecker, creeper, and flycatcher.

A number of species get their names from geographic locations. In the case of the Canada goose, Canada warbler, and Iceland gull, the name refers to the primary breeding area; for other species, the name refers to general distribution within North America (i.e., western tanager, northwestern crow), or wider distribution (American redstart, northern flicker). Many are named for the areas in which they were first discovered: Mississippi kite, Philadelphia vireo, California gull.

Species named for the people who discovered them, or to honor other individuals, form another large category (i.e., MacGillivray's warbler, Clark's nutcracker, Harris' sparrow).

The "slang" names that many of our bird species have acquired over the years are a part of our folk heritage. Generally, those birds with the most such names are conspicuous, either by their size, bright plumage, distinctive call, or unusual behavior. The following list of bird names includes officially recognized common names in the left column, and some colorful colloquial names in the right column. Test your skill by matching these names (**note that two species have more than one slang name listed**):

1. Black-crowned night heron	a. Helldiver
2. Great blue heron	b. Bullbat
3. American bittern	c. Flamecrest
4. Loggerhead shrike	d. Snowbird
5. Pileated woodpecker	e. Big cranky
6. Golden-crowned kinglet	f. Dabchick
7. Brown-headed cowbird	g. Cock-of-the-woods
8. Common nighthawk	h. Shite pote
9. Gray jay	i. Camp robber
10. Pied-billed grebe	j. Bogbumper
11. Spotted sandpiper	k. Buffalobird
12. Northern flicker	l. Water belcher
13. Dark-eyed junco	m. Redhammer
	n. Butcherbird
	o. Teeterbird

Scientific names of birds have many of the same origins as their common names—they usually describe the bird's plumage, behavior, or distribution. The following list includes some interesting examples of the literal translation of the Latin names of birds:

Common Name
(Scientific Name)
Literal Meaning

Western grebe
(*Aechmophorus occidentalis*)
"Western spear-bearer"

White-throated swift
(*Aeronautes saxatalis*)
"Rock-dwelling air-sailor"

Pinon jay
(*Gymnorhinus cyanocephalus*)
"Blue-headed naked-nose"

Brown-headed cowbird
(*Molothrus ater*)
"Black parasite"

Western meadowlark
(*Sturnella neglecta*)
"Neglected little starling"

The sources of most scientific names are fairly easy to explain, but the origins of the western meadowlark's name may not be as obvious. "Little starling" seems inappropriate considering that the meadowlark is bigger than a starling, but this name probably refers to the shape, which resembles a starling. Audubon chose the name *neglecta* in 1844, as a statement to authorities who he felt had procrastinated in selecting a name for this species. For more on the origins of the names of birds, see: "American Bird Names," 1973, by Ernest A. Choate, Gambit Books, Boston.

Answers: 1h; 2e; 3j, l; 4n; 5g; 6c; 7k; 8b; 9i; 10a, f; 11o; 12m; 13d.—*Daniel Casey, DFWP wildlife biologist, Kalispell*

CHECK OUT THE CHECKOFF

Funding for Montana's Nongame Wildlife Program took a turn for the better this year, thanks to action by the 1987 Legislature. SB177, the "Nongame Wildlife Funding Bill," contains three key features that will improve the nongame funding picture:

1. **Reauthorization**. Under previous law, the income tax checkoff was due to sunset unless reauthorized by the Legislature. New provisions include permanent reauthorization, so the checkoff is now a permanent feature for funding the nongame program unless it is repealed.
2. **Funding source**. The old law contained a clause that checkoff contributions replace license fee funding for the Nongame Wildlife Program. Now, however, that restriction has been repealed.
3. **Administrative costs**. Under the old law, the Department of Revenue tapped the nongame account for over $7,000 to administer the checkoff. This amounted to 25% of the checkoff revenue for tax year 1985 (the 1986 checkoff). Now, however, there will be no charge for administration.

As a result of these changes, the nongame program will be able to better serve the needs of Montanans. Paying taxes is never fun, but the checkoff provides an opportunity for a designated gift to an important and specific program.—*Dennis Flath, DFWP nongame biologist, Bozeman*

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